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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

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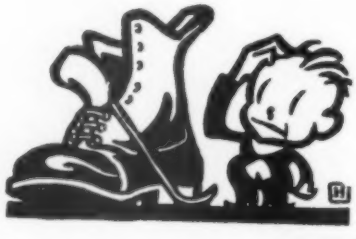

This Man for Us!

MAY we pass on for further consideration by our readers, this "Man's Prayer":

¶ Teach me that sixty minutes make one hour, sixteen ounces one pound, and 100 cents one dollar. ¶ Help me to so live that I can lie down at night with a clear conscience, without a gun under my pillow, and unhaunted by the faces of those to whom I have brought pain. ¶ Grant that I may earn my meal ticket on the square, and that in earning it I may do unto others as I would have them do unto me. ¶ Deafen me to the jingle of tainted money and to the rustle of unholy skirts. ¶ Blind me to the faults of the other fellow, but reveal to me my own. ¶ Guide me so that each night when I look across the table at my wife, I will have nothing to conceal. ¶ Keep me young enough to laugh with little children, and sympathetic enough to be considerate of old age, and when the day comes of darkened shades and the smell of flowers, the tread of soft footsteps and the crunching of wheels in the yard, make the ceremony short and the epitaph simple—

"Here Lies a Man."

The Publishers

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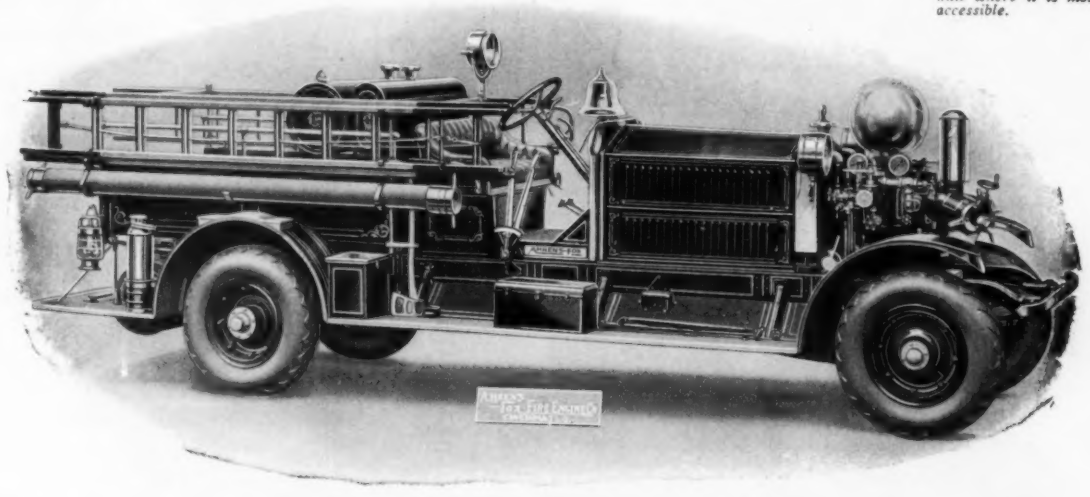

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Cities that spend hundreds of thousands on powerful apparatus and then hedge on the price of hydrants place the fire department at a decided disadvantage. Hydrants can't be shown with pride to visiting firemen but they can, if they're the right kind, aid materially in the department's record for efficiency.

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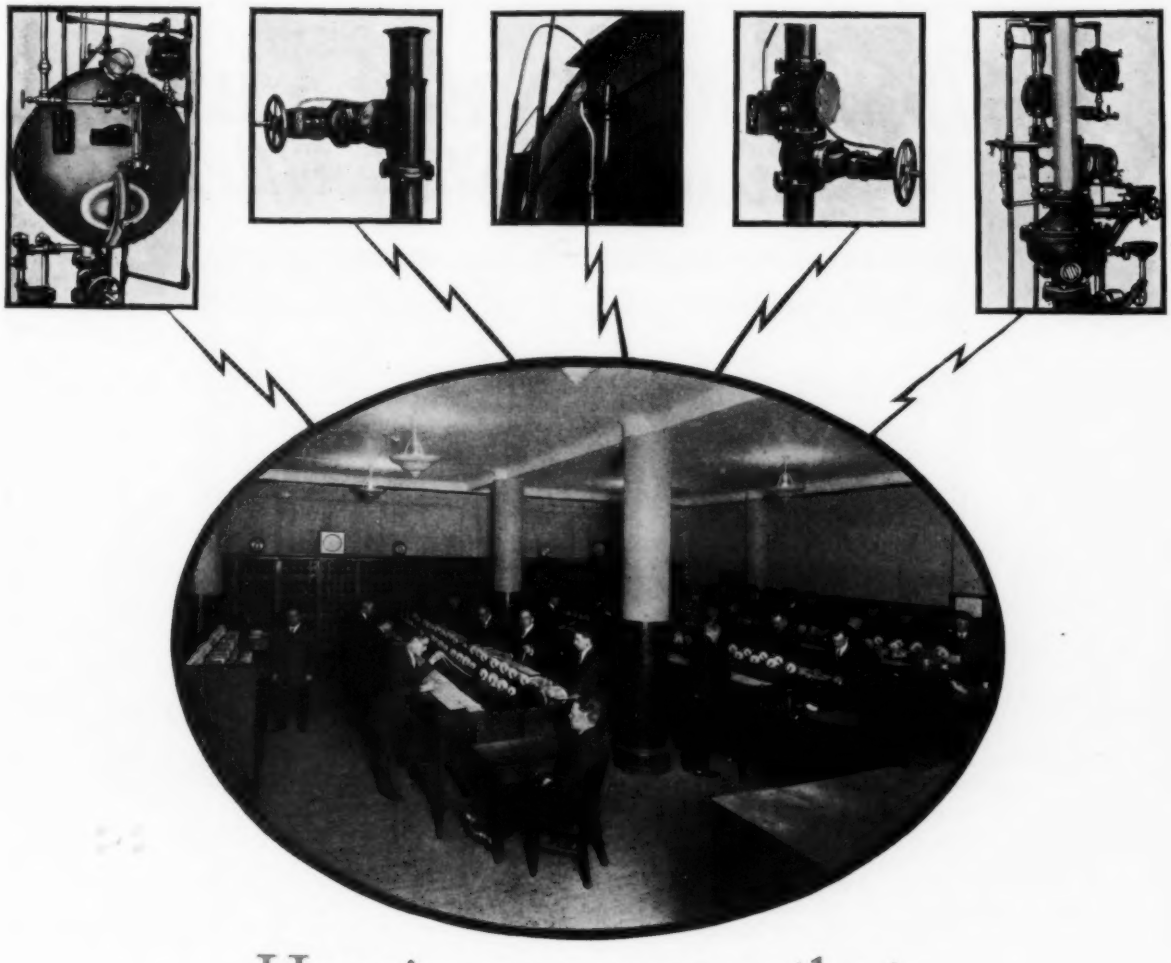

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A.D.T. Central Stations in 113 cities throughout the country are constantly supervising sprinkler systems by detecting closed gate valves, leaky gravity tanks, high or low water pressure, high or low temperature and water in the gravity tank and failing power supply.

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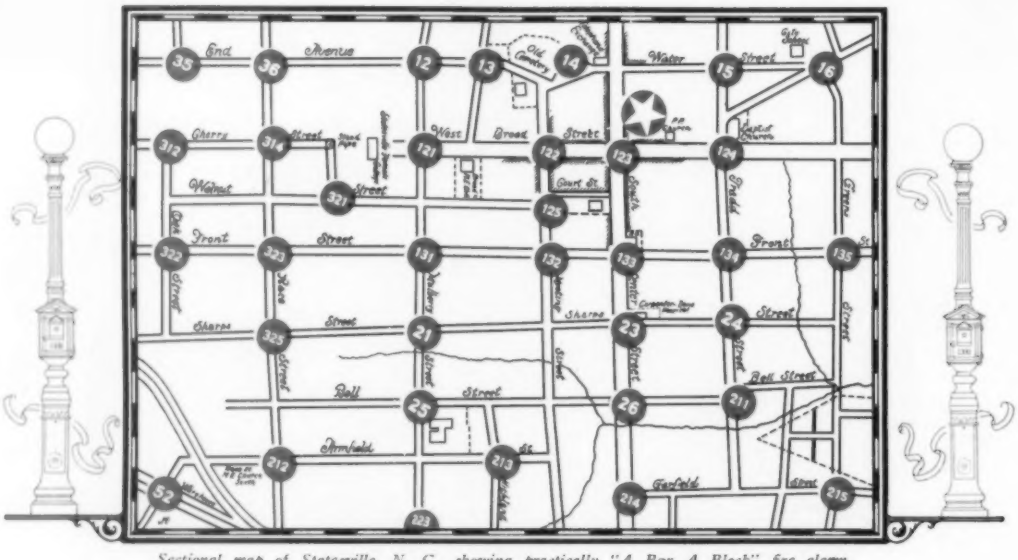


Sectional map of Statesville, N. C., showing practically "A Box A Block" fire alarm box distribution. Numbered spots indicate fire alarm boxes. Star indicates fire alarm central office.

Statesville, N. C., will attain the distinction of having the most adequate fire alarm protection of any small municipality in the country, upon the completion of a contract calling for the nearest approach to "A Box A Block" fire alarm system that has up to this date been installed.

Statesville has a population of 7895 and a fire area of 45 acres. The new Gamewell system calls for 100 standard Gamewell non-interfering and succession fire alarm boxes which will provide almost "A Box A Block" fire alarm protection for the business and developed residential districts.

Not only has the present been taken care of, but the future as well. In the fire alarm central office there will be equipment that will take care of the future growth of the city for some years to come. A Diaphone has been selected for a public alarm.

The officials of Statesville are to be commended for their good judgment in providing adequate fire alarm protection for their citizens. This step marks the removal of one more city from the ranks of those depending upon the telephone which is slow and unsuitable for fire alarm use.

The city has a good fire department and the officials realized that to secure the best results from that department they must provide it with prompt and accurate alarms. To assure promptness they have provided an almost perfect "A Box A Block" fire alarm box distribution—to assure accuracy they have selected the finest fire alarm equipment that is made—Gamewell equipment with a 63-year service record.

The citizens of Statesville have the assurance that their lives and property will be safeguarded. In addition they should not overlook the fact that the completion of the new fire alarm system will place them a few hundred points nearer to a better insurance rating.

When planning a fire alarm system for your city make it 100% "A Box A Block."

THE GAMEWELL COMPANY

Newton Upper Falls, Mass.

"A Box A Block"

FIRE ENGINEERING

(A Consolidation of Fire and Water Engineering and The Fire Engineer)

The Journal of the Fire Protection Profession

VOLUME LXXXI MAY 30, 1928 NUMBER 11

Here's the Last Word in Examinations

Suggested Questions for the Post of Fire Lieutenant—Outline of Tests—Insure Equitable Ratings

THE average fire-fighter is not skilled in the art of expressing himself fluently in writing. For this reason the type of examination—known as the free answer form—is not always a fair test of the ability of the man taking the examination. He may thoroughly understand his subject, and yet be unable to express himself in sufficiently clear terms to convey to the examiner the full extent of his knowledge. In order to avoid such a difficulty, a short answer form of examination has been devised by the Bureau of Public Personnel Administration, Washington, D. C., which avoids any such result and gives the man who is unable to express himself fluently in writing an even chance. It also results in more equitable rating of examination papers. The Bureau was established in 1922 to serve public personnel administrators in the United States and Canada and others interested in improving personal administration in the public service. It is independently supported and has no connection with any governmental body.

The practise of filling the higher posts in the fire service of cities by promotion is firmly established in the the cities of the United States and Canada, the only notable exception being the appointment of fire commissioners, superintendents, or chiefs and possibly a few assistants in some of the larger places. In those cities, moreover, where there is a personnel agency the practise is almost as firmly established of making promotions, when vacancies occur, by means of competitive tests open to those who have served for some minimum period in the next lower rank (sometimes the promotion tests are open to those of more than one lower rank). As a consequence public personnel administrators whose jurisdiction extends over the fire service have paid a great deal of attention to the development of tests for use in selecting those to be appointed to the higher classes of fire fighting positions.

Until recently written tests of this type have been almost entirely in the free answer form. Personnel administrators have been keenly aware of the limitations of these written tests; they have recognized that the type of men to whom fire fighting work appeals are not as a rule skilled in expressing themselves in writing, even thought they may be competent in fighting fires. A number have requested the Bureau of Public Personnel Administration to give attention to the development of tests in the short answer form which may be used in the competitive promotion tests they are required to hold at frequent intervals. The task of developing such tests was taken up over a year ago and though considerable experimental work remains to be done, the tests have reached the stage where it is felt they are worth submitting to public personnel administrators. It is hoped that in the next year or two sufficient additional experimental work will be done and sufficient additional data obtained that the tests can be completely standardized.

Duties, Qualifications and Compensation of Fire Lieutenant

There is more uniformity in the organization of the fire fighting work carried on by fire departments of large cities than in the organization of most other types of public work. Nevertheless the organization varies to some extent and, what is somewhat surprising, the terminology is not yet completely standardized. In par-

"UNTIL recently, written tests have been in the free answer form. Personnel administrators have been aware of the limitations of these written tests; that the type of men to whom fire-fighting appeals are not, as a rule, skilled in expressing themselves in writing. The task of developing tests in short-answer form was taken up over a year ago, and the tests have reached the stage where it is felt they are worth submitting to public personnel administrators."

ticular, the distinction between a Fire Lieutenant and a Fire Captain may be a perfectly sound one, with the Captain exercising greater responsibilities than the Lieutenant; in some cities, however, the distinctions which are made are largely fictitious. The title Fire Lieutenant is used in this article to indicate the fire fighting officer who has charge during an assigned shift of one piece of fire fighting apparatus; he is not responsible for the administrative work in connection with a fire house or fire station except in those rather rare cases where there is only one piece of apparatus at the station or house. More specifically, the duties of Fire Lieutenant, as the term is used in this article, and the required and desirable qualifications, are as follows:

Duties: Under the direction of a Fire Captain or other supervising officer, to have charge, during an assigned shift, of the operation, care, and maintenance of a piece of fire fighting apparatus and to direct the work of the men assigned thereto; during the hours on duty, to attend fires to which the company responds and lead the men in saving life and property and in extinguishing fires; in some cases, to have complete charge during a shift of a station to which only one company and piece of apparatus is assigned; and to perform other work as required.

Example of Typical Task: Working with and directing the men in the company in saving life and property and extinguishing fires; if the first officer to arrive at a fire, taking command pending the arrival of a superior officer; assigning the members of the company to duties in quarters; conducting drills; maintaining discipline; keeping company records and making the required reports; seeing that the quarters and equipment are properly cared for and maintained.

Minimum Qualifications: Elementary school education; two years of successful experience in fire fighting; considerable knowledge of the fire fighting apparatus and methods used in the city, of the local fire laws, rules, and regulations, of the geography of the city, and of the buildings and fire hazards of the district; ability to lead men at a fire and to direct their work at stations; coolness and resourcefulness in emergencies; courage; agility; good physical condition.

Additional Desirable Qualifications Education equivalent to that represented by graduation from a standard four-year high school; knowledge of modern fire fighting apparatus and methods; mechanical ability.

Differences in Qualifications

In two important respects the qualifications as stated above differ somewhat from those commonly required or emphasized. It is not customary to require of a Fire Lieutenant the completion of the elementary school grades or to give much additional credit for high school work. The staff of the Bureau of Public Personnel Administration is convinced, both because of theoretical considerations and because of observation of fire fighting work, that the Fire Lieutenant, occupying a position of leadership as he does, works under a considerable handicap unless he has at least an elementary school education and that additional formal education is highly desirable. In many cities too a longer period of fire fighting service than two years is required before a member of the fire fighting force is permitted to take the competitive tests for Fire Lieutenant. There is nothing approaching unanimity of opinion on this point among the higher administrative officers in fire departments or among civil service examiners; a good many who have given the subject careful consideration, however, are of the opinion that the younger men who quickly pick up considerable knowledge of fire fighting equipment and methods, who are able to demonstrate the qualities of leadership, and who are in good physical condition should not be denied the opportunity to prove their fitness to serve as Fire Lieutenant as far as formal tests can show such fitness.

The compensation for Fire Lieutenant varies a good deal in different cities. In only a few of the larger cities of the United States is it less than $1,800 a year and in still fewer is it higher than $2,400; the average in 1923 in eighteen of the larger cities of the United States, according to figures compiled by the Philadelphia Bureau of Municipal Research, was $2,164.

From the data obtained as the result of the experimental work with the material in the short answer forms and from the reports made by the examiners who gave the tests and some of the men who took the tests, several things stand out with clearness:

1. The material in the short answer forms seemed difficult to those who took the tests and proved through

(*Continued on page* 475)

Radio Control of Fireboats Successful

After nearly two years of operation the radio control of fireboats has been declared an unqualified success by the officials of the Boston Fire Department.

The three boats of the Boston fleet, Engine 44, the "Angus J. McDonald"; Engine 31, the "Thomas A. Ring"; and Engine 47, the "John P. Dowd" are all equipped with radio telephones

Upper — Communicating With Fire Boats by Radio.

Lower — Fire Boats of Boston in Action

and are thus able to keep in communication with the fire alarm office at all times.

The radio phones on the boats and at the fire alarm office in The Fenway are tuned for a 119 meter wave length and two way communication is carried on, so that the fire alarm dispatcher can order the boats to return if a report is received from the district chief that the fire for which the alarm was received is a trivial one. This saves many long trips up through the drawbridges of the Fort Point Channel.

The commanding officer of the fireboats in turn makes his report to the fire alarm office by means of the radio phone and can give direction where the land companies should be sent in view of conditions as observed from the water side.

The system was devised by Superintendent of Fire Alarms George L. Fickett, of the Boston Fire Department. This city was the first to adopt radio control of fireboats and the radio telegraph was used prior to the perfection of the radio telephone system now in use. There is an aerial on poles above the roof of the fire alarm office for radio transmission and each fireboat carries its aerial strung from flag pole to smokestack with lead to radio room in rear of pilot house.

HARRY BELKNAP.

What are the Benefits of Inspections?

Details of Systems in Use—Methods of Operation—Fire Limits—Fire Prevention Bureaus—State Laws on the subject

ONE of the most important functions of the modern fire department in the reduction of the fire loss is that of inspection. The activities along this line under the direction of the progressive chief are usually conducted through the medium of a fire inspection bureau or division. In many cases this unit is distinct from the fire extinguishing force, and is formed into a separate bureau. The Insurance Department of the Chamber of Commerce of the United States has been conducting an investigation into this phase of fire-fighting, and some of the results of this work by the department is summed up in this article:

Some Direct Benefits from Inspection

There are several direct benefits to be derived from regular inspections conducted by the Fire Department:

1. By the actual removal or correction of fire hazards many fires are prevented, which if they had occurred would have meant, in addition to the actual destruction of property, an unnecessary expense to the city for extinguishment, the jeopardy of the lives of both citizens and firemen and the possibility of a sweeping and disastrous conflagration. It is then a service of real conservation.

2. Such a system, properly conducted, has a valuable psychological and educational effect upon the owner or the occupant of the property inspected, in acquainting him with the fire hazards found, and with the needs and problems of the local fire department itself.

3. The local fire service becomes intimately familiar with the exact layout of every building inspected, as well as the peculiar hazards existing in each. This information, in the event of fire, naturally enables the fire fighters to handle the situation with the utmost efficiency instead of making blind guesses as to what to do, often resulting in death or serious injury.

Two Methods of Operation

In general, there are two methods by means of which this work is carried forward. The larger cities, as a rule, maintain a fire prevention bureau separate from the fire extinguishing force, while in the smaller communities the operations are conducted by the actual fire fighters—in many instances by the fire chief himself where there are no others available.

Fire Prevention Bureau

There is considerable difference in the working details of the various fire prevention bureaus conducted by fire departments in our metropolitan centers, and there probably is no one standard system which would be applicable to all cities. In order to arrive at some sort of idea as to how these fire prevention bureaus function, a questionnaire was recently sent to the chiefs of the fire departments of the following cities:

Baltimore	Indianapolis	Providence
Boston	Lincoln	Richmond
Chicago	Louisville	St. Joseph, Mo.
Cincinnati	Memphis	Seattle
Columbus	Milwaukee	Trenton
Detroit	Omaha	Tulsa
Denver	Portland, Ore.	Wilmington
Grand Rapids		

Of these 22 cities, 20 maintain a fire prevention bureau aside from the extinguishing force. In larger centers of population the very volume of the work necessary, the application of the local fire prevention code, the complexity of the peculiar hazards of many industries and other occupancies require the full time services of a group of men assigned to such work.

All except three have subordinate fire department officials as the chief officer of the bureau. Some of these titles are Fire Marshal, Battalion Chief, Chief Fire Prevention Engineer, Assistant Chief, Captain, and Manager. Naturally the chief officer of the fire prevention bureau should be well versed in the technique of fire prevention, not only as regards the many individual fire hazards themselves, and their proper safeguarding, but he should also be thoroughly familiar with the organization and operation of private fire brigades, all types of fire drills, exit facilities (including fire escapes), private fire alarm system, automatic sprinkler installations and operation, and such matters. He should, of course, be an executive respected by his subordinates. He should also have sound judgment in his approach to the occasionally troublesome citizens, some of whom are successfully handled through diplomacy, while others require great firmness.

Fire Limits

Certain areas in most municipalities are known as the fire limits. These are fixed through ordinance of the local government and usually embrace territory where only certain types of construction or occupancy are permitted. The areas thus prescribed usually are provided with extra fire precautions, because of the customary presence of high values and congestion. There may be several such prescribed limits in one municipality.

Details of Systems in Use

As to the frequency of inspections *within the fire limits*, the above mentioned questionnaire indicated that one bureau makes regular weekly inspections, three

"EVERY city having a Fire Department of any kind should see that regular inspections are made and that the inspector has authority to secure the elimination of existing fire hazards. Even where the chief is the only full paid man, a reasonable portion of his time should be spent in this work."

monthly, nine quarterly and three semi-annually. Six cities said that daily inspections were made, but this is understood to have meant that inspectors were daily at work rather than that each building received a daily inspection. Wherever possible to do so it is recommended that at least quarterly inspections be made within the fire limits, for the most serious consequences of an outbreak of fire are likely to occur here.

Four make daily inspections *outside the fire limits* (daily as defined in the preceding paragraph), one weekly, one monthly, two quarterly, six semi-annually, four annually, one "on call" and three do not make any. Considerable objection to the inspection of dwellings has arisen in some territory, not only from the occupants themselves, but also because of lack of men to perform this phase of the work; and in such cases it is recommended that the same end be attained by the use of home inspection blanks furnished to school children once or twice each year. Home inspections accomplished in this manner have produced remarkable results.

With two exceptions, inspectors are rotated from one district to another. This custom broadens the knowledge of the inspectors, and has a tendency to prevent oversights in too frequently inspecting the same building. Five inspect all classes, sixteen all except dwellings and one business houses only. Fifteen inspect and test sprinkler equipment, two inspect equipment, one inspects valves only and four do not inspect or test. Eighteen inspect standpipes and four do not.

Before being assigned to inspection work, firemen in all except three cities receive special schooling under trained inspectors or experienced firemen. As fire prevention is a science in itself, it is very important that inspectors be given a thorough training before attempting to do inspection work. The knowledge which the chief officer possesses as indicated above should be passed on to all of the inspectors. It is obvious that any but intelligent recommendations made by the bureau will only result in friction with local citizens. Just as in any other business, the inspector must be thoroughly familiar with his job.

Inspectors Have Police Powers

In nine cities inspectors have police power and in one city they have restricted powers. In one case the Fire Marshal and the assistant only have police power, and in another instance the chief inspector and fire investigators have this power. In ten cases inspections are made by officers, in ten others by both officers and privates. In two cases no inspections are made. In eighteen instances inspections are made on city time and in three they are not. In one case they are made "on and off."

In all but six cities fire drills are conducted in city schools by firemen, the intervals varying from monthly to annually. Previous to attempting to supervise or criticize fire drills, the inspector should thoroughly acquaint himself with various types of drills, means of egress, and the dangers of each if improperly designed.

All except one city have a follow-up system. Reinspections, mailed notices and check-ups by Fire Marshals are the usual custom. In some instances those who do not comply are referred to the State Fire Marshal's office. The card systems for keeping inspection records vary greatly, but almost all of the cities mentioned use such a method. Some are very elaborate with special printed blanks for use in connection with various occupancies. These blanks should be designed to meet local conditions.

A permanent fire prevention bureau can accomplish much, especially if backed up with an efficient modern building code, proper ordinances regarding fire hazards and authority for compelling corrections where resistance is met.

Inspections by Fire Extinguishing Force

It is sometimes difficult for moderate-sized cities to maintain a separate branch of the fire service for fire prevention exclusively and in extremely small cities this arrangement is very rare indeed. But every city having a fire department of any kind should see to it that regular inspections are made and that the inspector has authority to secure the elimination of existing fire hazards. Even where the fire chief is the only full time paid man on the department, a reasonable portion of his time should be spent in doing this valuable work.

State Laws and Fire Department Inspection

That fire prevention inspections on the part of the fire department are important is further indicated by study of the existing Fire Marshal laws of some of our states. As four states have decreed by law that local fire departments do inspection work, a glance at certain sections of the laws in these is interesting.

In Indiana—

"It shall be the duty of the chief of the fire department of each city of the first, second, third and fourth class, in addition to his other duties, to inspect all buildings, premises, and public thoroughfares, except the interiors of private dwellings, for the purpose of ascertaining and causing to be corrected any conditions liable to cause fire. Such inspection shall be made at least once in three months—in such fire limits."

A section of the Kentucky Laws reads—

"* * * the Chief of the fire department is required in person or by officers or members of his fire department designated by him for that purpose to inspect all buildings * * * except the interiors of private dwellings." The inspection is to be "made once each 6 months in territory served by the fire department, and not less than once in 3 months within the fire limits, and oftener as the Chief may order. A written report shall be made and kept on file."

In North Carolina—

"It is the duty of the insurance commissioner to require in all municipalities of the state that such officers * * * make in their respective municipalities annual inspections of the buildings therein, and quarterly, inspections of all premises within

(*Continued on page 467*)

Even an Ice Plant May Make a Good Hot Fire

When firemen arrived to fight a blaze in the warehouse of the Milwaukee Ice Company, Milwaukee, Wis., the fire had gained such headway that it was impossible to save the building. Large quantities of ice were destroyed. The department worked to protect nearby buildings from destruction.

Deck Guns Would Have Helped

Fire Enters Department Store Through Unprotected Windows—Small Streams Unable to Cover Exposures

THIS article of the series on administration describes a fire in a particularly hazardous block of buildings from a fire standpoint. A six story department store, a three story brick and joist constructed theatre building, a dry goods store, a two story furniture store, and a garage were all grouped in one corner of a block.

The fire started in the theatre building and entered the department store through unprotected doorway in basement, with a result that the department had a bigger fire on its hands than it was able to handle.

The city in which this fire occurred had a population of approximately 68,000. The water supply was excellent in the neighborhood of the fire, there being 12 and 10 inch mains on surrounding streets. The water pressure was supplied by a gravity system and the pressure ranged from 45 to 50 pounds.

The Fire Department

The fire department consists of five engine companies, two truck companies and one chemical company.

Engine Cos. Nos. 1 and 3 have 750 gallon pumpers, triple combination; Engine Co. No. 2 has a 700 gallon triple combination; Engine Cos. Nos. 4 and 5 each have a 500 gallon triple combination pumper.

Truck Co. No. 1 was equipped with a city service truck and Truck Co. No. 2 with an aerial truck.

Chemical No. 1 has a combination chemical and hose wagon equipped with a deluge gun.

Response to alarms as follows: First alarm, Engine Cos. Nos 1 and 2 and Truck Co. No. 2.

A general alarm brings out Engine Cos. Nos. 3 and 4 and Truck No. 1.

Engine Co. No. 5 and Chemical Co. No. 1 respond only on special call.

Description of Property

The diagram herewith shows the layout of the fire building as well as surrounding structures.

The fire started in the theatre building as shown in the sketch. To the west of this building was a six story department store of brick and joist construction, well filled with highly inflammable merchandise.

To the east of the fire building was a one story dry goods shop, beyond which were a one story lunch room, a two story shoe store, and a five story brick hotel.

South of the fire building was a two story furniture warehouse fully stocked while beyond this was a two story building occupied on the ground floor by a restaurant and on the second floor by a pool room.

Southeast of the theatre was a large one story garage of usual construction.

Buildings across the street both to the north and west are shown in the sketch.

The theatre building was a converted building, having formerly been part of a large structure located on the corner of Wilbur Avenue and Lorraine Street. A brick wall divided the theatre from the department store, but there were two doorways in the basement connecting the theatre building to the department store. Both were heated by a common heating plant.

The fire was discovered at 12:30 a. m. and apparently started in the theatre dressing rooms beneath the stage shortly after the evening's performance. At the time of discovery the fire had gone up through the stage well and was apparently out in the auditorium, judging from its condition when the department responded.

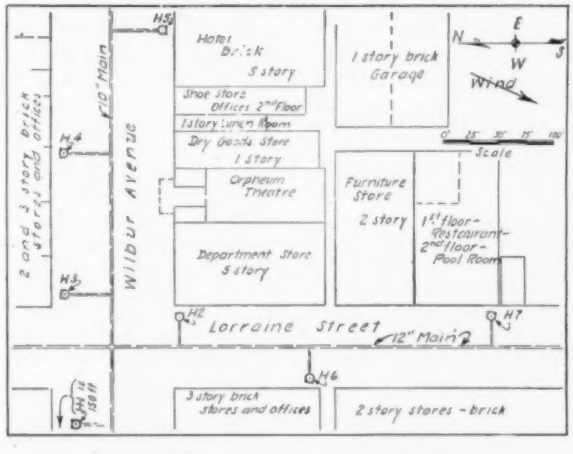
Alarm Sent in at Once

The patrolman transmitted a box alarm immediately upon discovering the fire, bringing out the first alarm assignment.

The fire alarm office records show the receipt of the box alarm at 12:31; first alarm apparatus arrived at 12:34, and the assistant chief at 12:36.

The assistant chief reported that upon his arrival fire was going through the roof above the stage well and the wind was driving the smoke against the department store.

He immediately investigated the interior of the theatre building and found the auditorium well charged with



smoke and fire burning up beneath the ceiling, it apparently having come through the procenium arch from the stagewell.

The assistant chief immediately upon noting the condition transmited a general alarm, which was sent in at 12:39. The first of the apparatus on this alarm arrived at 12:43, and the chief reached the fire at 12:46.

Assignment of lines were as follows:

Engine Co. No. 1 was placed at hydrant No. 3 and a single line was stretched with 1¼-inch nozzle through the theatre entrance. This line operated at long range on the fire in the stagewell, the heat being quite intense and the building too fully charged with smoke to permit close operation.

Engine Co. 2 was stationed at hydrant No. 4 and a single line stretched in with a 1⅛-inch shut-off nozzle to the balcony floor by front stairway.

This line operated in an endeavor to wet down the ceiling and check the fire from burning out in the auditorium. It might have been successful but was forced from its position a little later by the increasing intensity of the heat in the auditorium.

Truck Co. No. 2 sent men to the roof who opened

up over the auditorium and relieved conditions therein for a short time.

The assignment of apparatus on the general alarm was as follows:

Engine Co. No. 3 at hydrant No. 5 and a single line stretched to the theatre roof by way of ladder placed by truck company No. 1. A 1⅛-inch nozzle was used.

This line covered the department store windows overlooking the theatre building and wet down the roof, particularly near the stage well.

Engine Co. No. 4 was placed at hydrant No. 6 and a single line stretched to the rear of the theatre, entering the theatre through the stage entrance. A 1⅛-inch tip was used.

It was too hot near the stage well for the men to get in to a point where they could do effective work and they had to do the best they could from the doorway.

After the fire burned for a few minutes it got too hot inside the theatre auditorium, despite the ventilation done by the truck company, and the line from Engine Co. No. 1 was forced to withdraw.

Upon backing out this line went to the roof of the one-story dry goods store east of the fire building and operated in an endeavor to wet down the roof and prevent fire from entering the department store.

Theatre Roof Adds to Hazard

The condition of the theatre roof made it advisable to withdraw Engine Co. No. 3 from the roof, and this line was put in operation at the front entrance of the theatre to help the line from Engine Co. No. 1 operating therein.

In the meantime Engine Co. No. 5 was special-called and it was put to work at hydrant No. 1, a single line being laid to the basement of the department store where fire had entered from the theatre. That the fire had passed through the doorway between theatre and the department store was not discovered until the truck company had finished getting ladders in position. By this time there was a great deal of smoke in the department store basement and the men found it extremely difficult and dangerous to operate at close range on the fire. They contented themselves with working from the stairway near the doorway in the basement, but were unable to do effective work.

The chief reported that shortly after fire was discovered in the department store either the rear part of the theatre roof or else the procenium wall collapsed. In either case a large portion of the roof was torn down or fell, opening up a big area through which the fire quickly rose, sweeping the east wall of the department store. The wind, blowing from the northeast, drove the fire directly toward the unprotected windows.

The single line operating from the roof of the dry goods store to the east of the theatre was unable to cover the exposures properly and fire soon entered the department store both on the 5th and 6th floors.

With fire burning both in the basement and above, it was but a very short time until the department store was fully involved.

From this point on the department had a very hard fight on its hands but by a continual shifting of lines it was able to prevent fire from gaining full control of the furniture store to the south. Twice fire entered this two-story building but in each case the department was able to hold it, and at the same time cover the exposures across Lorraine Street, toward which the wind was driving the heat.

After a 3½ hour fight the fire was finally brought under control, but not until it had completely leveled the theatre and department store and damaged quite a bit of furniture in the northwest corner of the furniture store. Whether or not the department, using different tactics, could have held the fire to the theatre building can only be conjectured.

However, the Editor's ideas on the handling of this fire will be given in the next issue of this journal.

Chief Espey Celebrates 24th Anniversary

Officials of Elmira, N. Y., paid tribute to the excellent record of Chief John H. Espey, who has rounded out twenty-four years of service in the fire department.

When Chief Espey entered his office the morning of May 18, he found a large floral piece sent by members of the department. The following resolution was passed by the Fire Commission:

"*Whereas*, John H. Espey has completed twenty-four years of service as chief of the Elmira Fire Department, and

"*Whereas*, the Fire Commissioners desire to acknowledge their appreciation of his service, be it

"RESOLVED, That we extend to Chief Espey our congratulations for so many years of faithful service and extend to him our sincere hope that his future service be of as great satisfaction to future Commissions as are his services of the past."

Chief John H. Espey

Chief Espey entered the department on June 28, 1887, and became chief on May 16, 1904.

George M. Kellogg Called Dean of Chiefs

Chief George M. Kellogg of Sioux City, Ia., has been called the dean of fire chiefs by Chief William G. Green of Concord, N. H.

Citizens of Concord had arranged a dinner to honor Chief Green. They called him the dean of chiefs but he stated that he could not claim such honor. He said:

"There is one man in the United States who has served longer as chief than I, and that man is Chief Kellogg of Sioux City. He is the dean of all fire chiefs in the United States and the distinguished honor which you pleasantly attempt to confer upon me, belongs to him.

"Chief Kellogg is a grand old man, the greatest fire chief in this wonderful country of ours and the dean of us all. Only three of the chiefs I met at the first national convention of fire chiefs in 1895 attended the convention held at Portland, Ore., last year.

"At that time we determined that Chief Kellogg was dean of all of us. So the honor I must decline goes to the department chief of Sioux City, out in Iowa."

The late Chief William F. Daley of Brockton, Mass., was a great admirer of Chief Kellogg and often referred to his remarkable long career as chief.

Chief Kellogg has served as chief for thirty-nine years, just five years before Chief Greene was appointed head of his department.

Illinois Starts Firebug Campaign—Arson squads are being organized in several large cities in Illinois to reduce the number of incendiary fires in the state. The state will be divided into sections. One takes in all the northern section of the state and the second, territory between the Illinois and Mississippi rivers. This plan will aid the fire marshal in obtaining evidence while the clues are still fresh.

WITH THE EDITOR

Would He Teach the Chiefs Fire-Fighting?

In an address before the annual meeting of the National Fire Protection Association recently held at Atlantic City, N. J., an official high in the association criticised fire department operation. He is quoted, by press reports, as follows:

"In most cases what is particularly needed is merely the application of common sense. For example, without citing any special cases, we may assert that a number of the considerable fire losses of the past year were much larger than they need have been had the fires been competently and intelligently fought. While fire extinguishing apparatus has been standardized and developed to a high point of efficiency, there has been very limited standardization of the intelligent and efficient use of it."

He commented on "the fire chiefs and their men ignoring the value of standpipe and automatic sprinkler installations," claiming that in many cities the fire department connections to these facilities are neither known nor recognized by the departments, and in many cases, these are not even distinguished by any instructive marking.

"It would appear," said this official, "in putting forward programs of fire prevention that the item of fire extinguishment has not received the attention it deserves and that in addition to our efforts to establish fire department inspection and training schools for firemen, one of our responsibilities should be to advance a definite and continuous campaign of education in the use by the department of the modern available facilities like standpipes and sprinkler systems."

Is there not a little unjust criticism contained in the foregoing statements? The fire chief is fully trained in his line—if he were not he could not hold the position he does in an efficiently conducted city government, for there is too much at stake for anyone but a thoroughly competent individual to fill such a post. The chief has spent years of his life fighting fires and he, if anyone, knows the essentials of fire extinguishment. For a layman, then, to tell the chief he does not know his business, is unwarranted.

Again, when this critic credits his Association with the establishment of either methods of fire inspection or training schools for firemen, he must know that the initiative in the adoption of both of these progressive measures has rested, in the great majority of cases, with the chiefs themselves.

Beginning with the New York Fire College, the fire school has spontaneously spread throughout the departments of the country, because the chiefs recognized the necessity for such an institution in the training of the officers and men to their highest efficiency, and there was no necessity for any association to suggest any such plan to insure its adoption. The chiefs were quick to recognize the merits of, and adopt the successful plan originated in the New York Department.

While the cooperation of laymen and laymen's associations is gladly welcomed by chiefs of fire departments, and much good will and many benefits have resulted from such cooperation, the chief must remain the director of all efforts to guard the community from fire. He is the one responsible for this task!

The Short Answer Form of Examination

Up to very recently the method of conducting promotional examinations for the officers of the fire department was by means of the free answer form, in which the person taking the examination was required to write out his ideas and methods of solving the problems presented, in his own language. The difficulties arising from this method which have presented themselves to examiners called upon to decide upon the merits of the various candidates have been great, in that many of the experienced and capable men so examined have possessed little facility of expression, and in consequence, have been unable to put in writing the knowledge they possessed.

A recently developed method removes much of this trouble. It is the so-called short answer form of examination for fire department members, put forward by the Bureau of Public Personnel Administration of Washington, D. C. This plan consists of A, a certain number of statements in the completion form, each of which requires the individual taking the examination to write in a word or phrase to supply missing information; B, statements in multiple choice form, each containing four answers from which he must choose; and C, statements in the true-false form, which he must check. This constitutes the first part of the examination. The second consists of a test of the individuals understanding of literature relating to fire-fighting, in which he is required to answer with a word or short phrase questions relating to content and meaning of a selection of such literature, and also to indicate whether a certain number of statements as to content are true or false.

The advantages of such a system must be manifest. It avoids the danger of judging a fire-fighter by his literary ability or facility of expression, rather than his practical knowledge. It places all upon the most correct and fairest footing, with regard to the matter of fire-fighting. It also saves an immense amount of time and unnecessary effort, both on the part of the persons taking the examination and the examiners. It saves the

latter the necessity of digging through a large amount of verbose language, in some cases, in order to discover the practical knowledge of the candidate. And last, and by no means least, it teaches the candidate to express himself tersely and understandingly, with few words.

This system will, undoubtedly, supersede in the majority of cases, the old and more cumbrous method of examination.

Using the Scaling Ladder

There is a tendency among some fire department officers to minimize the advantages arising from the use of the scaling ladder in rescue work. These men claim that the employment of this means of reaching those trapped in a burning building is impracticable and that the ordinary extension fire ladder and the aerial, where the building is several stories in height, is all that is needed.

A glance at the list of awards for bravery recently made by the Board of Merit of the New York Fire Department shows strikingly that the scaling ladder plays a very important part in the rescue work by this department. In several instances this type of ladder was employed by the men in rescuing persons from buildings, above the reach of other ladders on hand.

Here is sufficient evidence that the scaling ladder fills a need in rescue work that cannot be met by any other type of ladder. With proper drilling and practice the men become very proficient in the employment of this device.

Plan for Rural Fire Protection

A plan has been drafted in Waynesburg, Pa., for the formation of a company primarily to protect rural property.

Residents of outlying towns and communities would form the active department. They are to report for duty only if the fire happens to be in their districts.

The organizers are soliciting funds with which to purchase fire apparatus, and are also seeking appropriations from the county government.

Body of Late Chief Daley Brought by Aeroplane from Maine to Brockton for Burial

IMPRESSIVE FUNERAL HELD FOR LATE CHIEF W. F. DALEY

One of Ten Men Drowned in Moosehead Lake Near Greenville, Me.—Nearly Two Hundred Chiefs Attend Funeral in Brockton

IT was a profound shock to the friends of the late Chief William F. Daley of Brockton, Mass., to hear of his death on May 13th. He was one of a fishing party consisting of Brockton city officials and prominent men who were drowned in a lake in North Maine.

The party had chartered "The Mac," a forty-three-foot speed boat, to take them to the Tomhegan Camps at the northern part of Moosehead lake. Shortly before the accident several saw the boat on the lake but there was nothing to indicate that anything was amiss. When about eighteen miles from the starting point, water was observed by the captain leaking rapidly into the boat.

The Late Chief Wm. F. Daley

Just how the leak developed is not known. It may have been caused by a partially submerged object or it may have been the result of a seam opening up. When the leak was discovered, the captain started the bilge pump. For a time it was believed that the leak was checked, but water rushed in faster than it could be bailed out. The only survivor jumped when the men stood knee-high in water. He swam through the icy waters and spent the night in a camp, one mile from where he landed. It was he who first told of the accident.

Not all bodies have been recovered. The city requested that the navy send divers to search for the few bodies still on the lake's bottom. Searchers have located the boat.

Chief Daley was head of the Brockton department since May 22, 1916. He joined as a call fireman thirty-six years ago and was appointed a member of the regular department in 1898. In 1903 he was promoted to lieutenant. On February 2, 1907, he was made assistant chief.

Two years ago at the convention of the I. A. F. C. in New Orleans, La., he was chairman of the exhibit committee.

St. Patrick's Church, which normally could seat 1,500, was filled to overflowing. Hundreds were turned away. Police had to make new traffic rules while the services were going on in order to care for the large crowds.

Funeral services were simple; he had wished no showy tributes. He had lived a simple life and wished to be buried accordingly. He had often told his wife that he wanted his funeral procession to follow the same route that he took with his family when he left his home to attend services. His wishes were fulfilled.

The funeral cortege was led by members and officers of the second platoon. This unit was followed by about one hundred chiefs representing cities within fifty miles of Brockton, as delegates from the New England Fire Chiefs Association. There were about fifty members of the Fire Chiefs' Club of Massachusetts headed by President P. J. Hurley of Holyoke.

Among the many tributes paid Chief Daley was one from Ira G. Hoagland, secretary of the National Automatic Sprinkler Association, who said:

"I knew Chief Daley very well personally and esteemed him as a valued friend. Among the elect he deserves the most complete eulogy that could be given him not only as a leading person in his profession but as a man."

Members of the clergy paid tribute to the late head of the fire department.

A widow and three children survive the late chief.

The state of Maine has started an investigation to learn the cause of the accident.

Dunmore, Pa., Working for Convention—Final preparations are being made for the Silver Jubilee convention of the Six-County Firemen's Association that will be held in Dunmore, Pa., on June 18–21.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Power of Pumper

To the Editor:

Will you explain to me the method of working the following example, when solving for horse power.

"Motive power—6 cylinders, bore 5⅞ in., stroke 7 in. = 140 horse power."

The formula, with which I am familiar: bore x bore x number of cylinders divided by 2.5 = horse power, does not solve out anywhere near the rating given above.

I will greatly appreciate your straightening me out on this. W. M.

Answer. Unfortunately there is no satisfactory formula at the present time for determining the horse power of automobile engines, and here is the reason: Some of them are operated at higher speeds than others and are built to operate at such higher speeds. Still other engines are built with a large diameter and short stroke as compared to others with small diameter and long stroke. While the small diameter with long stroke gives a more efficient machine, the one with large diameter and short stroke might give more power for the same number of cylinders.

Both the Society of Automotive Engineers and the Association of Licensed Automobile Manufacturers employ the formula as given in your letter for determining horsepower. This formula is based upon the assumption that the piston speed is 1,000 feet per minute.

The figures stated in your problem, 140 H.P., may be the brake horsepower. This is determined by actually testing the power delivered by the motor when operating at its maximum safe load. The engine is connected to an electric dynamometer and the dynamometer shows by electrical readings just how much power is being delivered to it. Hence the 140 H.P. stated may be the actual H.P. delivered while that you secure by the A. L. A. M. formula is H.P. which would be recognized when comparing the particular engine you have in mind with another one.

"False and True Questions"

To the Editor:

Will you kindly answer the following questions in an early issue. They are taken from an account you printed recently of a fire department examination in the east.

W. G. F.

Read carefully each of the following statements. If it is true, place a cross after the word True; if it is false, place a cross after the word False.

1. The first hook and ladder company to arrive at a building on fire should always immediately begin to ventilate it.

2. Concrete floors are always watertight.

3. Automatic relief valves are absolutely necessary on pumpers of the centrifugal type.

4. Engine pressure is always equal to nozzle pressure plus friction loss in the hose and at connections.

5. The stream of water from a chemical tank is much more effective in putting out a fire on a wooden roof than a stream of hydrant water of the same size and velocity.

6. The friction loss in a line of 3 inch hose with 2½ inch couplings is as great as the loss in a line of 2½ inch hose of the same length with 2½ inch couplings because in the former case couplings smaller than the hose break up the smoothly flowing stream of water.

7. A 700-gallon pumper should be able to deliver at least its full rated capacity at 120 pounds net pump pressure through two 100-feet 2½ inch hose lines siamesed into a one and three-quarters inch nozzle.

8. A fire engine standing on a street pavement 40 feet above the surface of the Hudson River can draw water from the river if it has been kept in proper condition and if it is not more than 200 feet from the river.

9. Battered threads on the siamese of a standpipe make it useless as soon as the water that was in the tank has been used.

10. If 2½ inch couplings are used with both 3 inch hose and with 2½ inch hose, the advantages of using uniform couplings offsets the disadvantage of the greater friction loss that results from the use of 2½ inch instead of 3 inch couplings in the 3 inch hose.

11. The net water pressure of a fire engine at work is affected by the length of hose and by the size of the hose and nozzle.

12. Skylights with wire netting are required over the stages of theatres.

13. The capacity of a steam fire pump depends only on the bore, while that of a gasoline fire engine pump depends on the number of cylinders as well as on the bore.

14. A pressure of 60 to 70 pounds at a two-inch nozzle will throw a stream of water the maximum distance for that nozzle.

15. A fire in a drug store, otherwise unaccounted for, might, under certain rather unusual conditions, be due to a gold fish bowl displayed in the window.

Answer 1: False.

Note. Ventilation is not begun until a line is ready to follow up.

2. False.

Note. Pipe recesses, such as around steam pipes and electric conduits, as well as other openings, are found in concrete floors.

3. False.

4. False.

5. False.

6. False.

Note. 3 inch hose with 2½ inch couplings has about 5% more friction loss than hose with 3 inch couplings. 2½ inch hose with 2½ inch couplings has 2.6 times as much friction loss as 3 inch hose with 3 inch couplings.

7. False.

Note. A 700 gallon pumper should deliver its full rated capacity at 120 pounds through 2 parallel 100 foot lines of 2½ inch hose with 1⅝ inch nozzles. A 750 gallon pump, on the other hand, should be able to deliver its full rated capacity at 120 pounds through two 100 foot lines of 2½ inch hose with 1¾ inch nozzle.

8. False.

Note. The maximum height which an engine can lift water vertically is considered at 28 feet, though test engineers consider that fire engine pumps in good condition should lift water a vertical distance of only 25 feet. Theoretically water can never be raised by even a perfect vacuum more than 34 feet.

9. False.

Note. If the threads on the siamese of standpipe make it impossible to connect hose to standpipe, then the line can be stretched up to the first floor landing and connected to the standpipe there by using double female reducer.

10. True.

11. True.

12. True.

Note. Skylights with plain glass, and a wire net below them are required over stages of theatres.

13. False.

Note. It is assumed that the bore of the pump is referred to in each. In this case the length of the stroke is just as important in the steam pumper as it is in the gasoline pumper, for the volume displaced depends upon the diameter of the cylinder as well as the length of stroke.

14. False.

15. True.

Note. Sunlight passing through a gold fish bowl or other double convex transparent body may be concentrated at a point sufficient to cause ignition of combustible materials.

Hydrant Capacity

To the Editor:

Will you please explain the following:

If 100 pounds pressure is available on a hydrant with a 2½-inch open butt, how many 1⅛-inch streams at 45 pounds pressure, with 100 feet of 2½-inch hose, are available?

Your prompt attention will be greatly appreciated.

V. J. G.

Answer: Before answering this question one or two points should be explained.

In the first place, a pressure of 100 pounds (flowing pressure) on a 2½-inch open butt is quite excessive. However, we will take this figure as correct and will use it in the following calculations.

Then another point arises: 100 pounds at the hydrant, where 100 feet of 2½-inch hose is used with 1⅛-inch nozzle, gives a nozzle pressure of 72 pounds instead of 45 pounds as you specify in your question. However, the pressure you give will be considered first and then a little data will be given on the subject to pounds pressure.

Assuming that the hydrant pressure is 100 pounds when flowing with full opening, the discharge will be approximately 1,670 gallons per minute.

The discharge from a 1⅛-inch nozzle at 45 pounds pressure as stated in your problem is approximately 250 g. p. m. Thus the hydrant flowing at 1,670 g. p. m. will be able to supply approximately six lines.

But with 100 pounds at the hydrant, and each line 100 feet in length of 2½-inch hose, having 1⅛-inch nozzle, the nozzle pressure will be approximately 72 pounds. With this nozzle pressure, the discharge from a 1⅛-inch nozzle will be approximately 318 g. p. m.

Again, taking the total flow from hydrant at 1.670 g. p. m., this flow will supply approximately five streams.

The above figures are based upon the assumption that a single outlet is being used, with proper Y connections, and that the hydrant pressure remains at 100 pounds.

Were more than one outlet used, or were sufficient water taken from the hydrant to reduce its pressure to approximately 64½ pounds, then we would get 45 pounds at a 1⅛-inch nozzle on the end of a 100 foot line of 2½-inch hose. Just how much the hydrant would discharge at this pressure (64½ pounds) could only be conjectured without running an actual test on the hydrant.

Chief Taylor Gets New Car

A new "Master Six" Buick sedan has been placed in serivce in Rome, Ga., for the use of Chief H. L. Taylor. The car is equipped with a 2½-gallon foam extinguisher, one 2½-gallon soda and acid extinguisher, one C. T. C. extinguisher, first aid kit, axe, and a siren, an invention of a former member of the department.

Haworth, N. J., to Have New House—The cornerstone has been laid for the new fire station being erected in Haworth, N. J.

N. Y. BOARD OF MERIT ANNOUNCES FIRE DEPARTMENT VALOR AWARDS

One Award Made for Service Performed Outside of Department—Several Medals Given for Lives Saved by Use of Scaling Ladders

By WILLIAM JEROME DALY

FIRE Commissioner John J. Doran of New York has approved the findings of the Board of Merit for the extraordinary acts of personal bravery performed by some members of the department during 1927.

The medals will be presented by Mayor Walker at the City Hall on June 18 before a large assemblage. Fourteen medals are to be presented for valor, one for discipline, one for administrative efficiency and fifteen to the members of the fire engine company most proficient in the execution of the Fire College evolutions and drill.

The Board of Merit considered scores of meritorious acts of personal risk performed during the past year and of all of those taken into consideration, the following were found to be the more commendable.

Capt. James A. Walsh No. 1 of Eng. Co. 234, receives the Bennett medal and the Department medal for rescuing a ten-year old girl from a second floor bedroom where he found her unconscious under the bed.

Fireman Francis T. Davis of H. & L. Co. 35, receives the Bonner medal and the Department medal for the rescue of a sixty-four year old man, which he effected with a scaling ladder from the top floor window of a four-story dwelling house.

Lieut. William P. Berry of Eng. Co. 241, Brooklyn, receives the Trevor-Warren medal and Department medal for rescuing a seventeen-year old youth from the store room of a cellar afire, before any water had been directed against the flames.

Eight-Year-Old Girl Rescued

Fireman Gustave R. Merker of Engine Co. 234, receives the Kenny medal and the Department medal for rescuing an eight-year old girl from the bedroom of her home on the second floor.

Fireman James Conny of H. & L. 16, receives the Van Heukelom medal and the Department medal for rescuing a man whom he had to reach with a scaling ladder from the top of a thirty-foot ladder. The man had fallen back into the fourth floor apartment window, unconscious and suffered from burns.

Fireman August V. Beck of Eng. Co. 238, receives the Brooklyn Citizens' medal and the Department medal for rescuing a father and son from the top floor of a tenement house fire at midnight.

Fireman James J. Sullivan of H. & L. Co. 1, receives the Crimmins medal and the Department medal for rescuing a little girl from the fifth floor bedroom of her home in an old-law tenement. The fire was of third alarm size.

Fireman John J. Bannon of H. & L. 35, receives the Brookman medal and the Department medal for rescuing a man who was hanging by his finger tips to the sill of the fifth floor of an apartment house at five o'clock in the morning of February 24, 1927. The rescue was effected by means of a scaling ladder which built up from the top of a thirty-five foot ladder—the aerial ladders were not available due to other rescues being made at that time.

Hysterical Woman Saved

Fireman Edward J. Kennedy of Engine Co. 44, receives the Prentice medal and the Department medal and Fireman Peter A Daly of the same company receives the Scott medal and the Department medal for their joint performance in effecting the rescue of a young woman hysterical from burns and smoke as she stood on the sill of the fifth floor window of her home overlooking a light-shaft and into which she threatened to jump. Daly sprawled himself against the brick wall from the sill of an adjoining apartment, while being held at the belt by Kennedy who braced himself on the sill with one foot with the other foot clamped by the ornamental iron of a bedstead near the window. Between them they lifted the young woman across the wall of the light-shaft and carried her to safety.

Fireman John G. Flynn of Engine Co. 13, receives the Department medal for saving a man's life at the 14th street subway station. Flynn, only five months in the service, was off duty and on his way home when the man stumbled and fell to the tracks of the subway just as a train was speeding into the station. Flynn leaped to the track level, seized the man whose head had struck the rail, rendering him unconscious, and so quickly did he drag the man from the track and shelter him under the overhang of the station platform that three car lengths had rolled

(*Continued on page 467*)

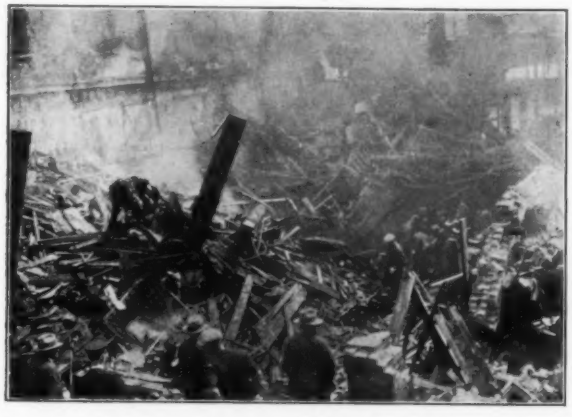
DEPARTMENT STORE COLLAPSES AT BLOOMINGTON, ILL., FIRE

Ten Streams Played on Blaze Which Threatened Nearby Buildings—Five Firemen Caught by Falling Walls—Boy Scouts Aid Firemen

By SIDNEY ULRICH

ONE member of the fire department and a volunteer helper are dead following the collapse of a wall in a furniture store blaze in Bloomington, Ill.

The flames were first discovered coming out of the second floor and they spread rapidly through the four-story building. The rug department where the fire was first noted developed



Searching the Ruins for Possible Bodies

into a hot fire. Firemen were unable to direct hose streams from ladders and had to operate from the street level.

A muffled roar, accompanied by the shattering of glass, was the first indication of the furniture fire.

A brisk southeast wind was blowing at the time. The heat scorched a nearby plumbing supply and apartment building, and threatened a motion picture theatre in which a show was going on. The theatre was soon emptied.

Boy scouts guarded the ten hose lines to prevent automobilists from running over the hose. Ropes were strung to prevent the large crowd from getting too near the burning building.

Seven firemen were caught underneath a fallen wall. Four were rescued within short time. The dead fireman was found under a mass of twisted iron and debris. He had evidently died while directing a hose stream.

After the fire was out and the ruins had an opportunity to cool, the west walls of the furniture house was pulled down as a safety measure. During the early stages, aid was summoned from Peoria and Normal, Ill., but the call to Peoria was later countermanded.

Damage was placed at $100,000, although it is believed that this figure is high.

Paterson has Department Store Fire

Two firemen lost their lives and fourteen were hurt in a fire in Paterson, N. J., that destroyed Linn's Department Store. It is believed to be of incendiary origin. The fire occurred at 2:30 a. m. and threatened the entire business block bounded by Main, Washington and Van Houten streets and Broadway.

Before apparatus arrived from the central headquarters, a block away, the interior of the building was all in flame. Two more alarms were sounded. Shortly after the fire had started, the roof began falling. Two companies of firemen were buried by the debris when the first, second and third floors collapsed one hour later. All but two of the men were rescued. Only the many hose streams directed on the ruins, prevented the men from being cremated.

The two companies were working their way to the second floor from the rear when the floor collapsed and hurled the men to the basement. The third floor fell on top of them.

One fireman died of a broken back—the other was found buried under a mass of bricks and wreckage. One fireman had just been married seven months ago.

The loss has been estimated at $100,000. Police officials have been directed to make a thorough investigation to learn the possible cause of the fire. Many who witnessed the fire believe that the collapse of the three floors was not due to the fire but to poor joining of the beams with the bearing walls.

Flags in the city were at half mast in honor of the two dead firemen. The annual inspection and parade of the department was postponed one week due to this incident. This is the worst casualty in the city's history.

Assistance Asked for Lumber Yard Blaze

A large part of a lumber yard in Clifton, N. J., a two-family dwelling, a part of another house and a garage containing two cars were destroyed in a fire that was fanned by a stiff wind.

The owner of the yard was superintending the loading of some trucks at the time and he noticed flames shoot up followed by roaring flashes. The department was called at once. Before the companies had arrived the flames involved the entire shed.

Firemen had difficulty in reaching the yard because of a heavy black fog about the section. An attempt was made to save the adjoining buildings. Aid was called from Passaic. Chief R. H. Bowker of Passaic who was on his way to the lumber yard narrowly averted a serious accident. His car crashed into a large truck but the chief was not injured. He drove to the fire in another car.

The fire lasted about an hour. Damage to the lumber yard was estimated at $40,000 and to the other property and cars about $25,000.

Newmarket High School in Ontario Destroyed

Fire from an unknown cause in a cloak room of the Newmarket High School, Ontario, Canada, destroyed one of the finest rural high schools in the Province of Ontario.

The building was on a high hill overlooking the village in the south end of the town. It had just been remodeled and a new wing added. The school was two stories high, of brick with steel beams, wood floors, wood lath and slate roof. The new wing had wire lath and steel stairways. The school was within two hundred yards from the town's standpipe. Four hydrants were within a fifty yard radius.

The fire department consisted of one American-LaFrance hose and chemical car, one thirty-five-foot ladder truck and a hose cart, manned by volunteers and quartered one and one-quarter miles from the school.

Fire was discovered at 10:15 p. m. by a student of Pickering College which is near the high school. The alarm was sent by telephone. Boys from the college who formed a squad of student-firemen, rushed to the building and laid two lines of 2½-

Ruins of Newmarket High School in Province of Ontario

inch hose. At that time the building was charged with smoke and flames issued from the windows. The water pressure was not sufficient to supply three lines, and only two were used. Aid was requested from Aurora, but when assistance came, the building was doomed.

JOHN KARL LEE.

Stoughton, Mass., Orders Pumper—Stoughton, Mass., has ordered a Maxim pumper.

Fire Razes Abandoned Hotel

Five firemen were injured while fighting a blaze that started from an unknown cause in the once famous Russell Hotel, Ottawa, Can., untenanted and awaiting demolition. The fire broke out early in the evening of April 14 and lasted until the early hours the following day.

Chief Robert Burnett, Deputy Chief Lemieux and District Chief Jack Bradley responded on the first alarm with apparatus from Stations 1, 2, 3, 4, 7, and 8. Within five minutes, Chief Burnett sent in a general call bringing out apparatus from Stations 5, 6, and 9, and men on the off-shift. Despite the work of the fire department, the fire lasted for eleven hours.

The hotel was in operation for the past sixty years and was

Still Throwing Water on Ruins After an All-Night Fire

one of the oldest in the city. It was as dry as tinder and made ready fuel for the fire.

Eighteen streams, including one from an aerial truck, were used. Overhead high tension wires added to the dangers. Power was shut off shortly after the firemen arrived, and the entire section was in darkness.

Very little fire was seen at first. About 12:30 a. m. flames broke out on the third and fourth floors. Several windows were blown out by the force of the explosions. Glass was shattered on those beneath. Chief Burnett and firemen were cut by the jagged fragments. About 2. a. m. flames broke through the roof, and debris started to fall.

Flying sparks were a menace to nearby buildings. It started to rain and snow about that time so that most of the roofs were wet. No patrol for brand fires was necessary.

Even though in the middle of April, a cold northwest wind was blowing. Several firemen had nasty falls on the ice covered streets.

The following apparatus were in service: two American-LaFrance 1,000-gallon pumpers, one Seagrave 1,000-gallon pumper, one Waterous 1,000-gallon pumper that was used for reserve, and eight hose wagons. There were 142 men on duty. The all out signal was sent in at 11 a. m., the following morning.

NORMAN M. WOOD.

Large Pier Destroyed at Keansburg, N. J.

Chief R. A. Jessen and fifteen firemen of the Keansburg, N. J., Fire Department were overcome from smoke while fighting a blaze that destroyed a large section of the New Point Comfort steamboat dock. The fire started from an unknown cause in a pavilion, 2,250 feet from shore. Within three hours the entire hook or "L" section of the pier was burned to the waters edge.

The fire was discovered at 4:00 p. m. on Sunday, May 13, by an employee of the company who telephoned fire headquarters. At that time, flames were sweeping towards land and threatened the destruction of the boardwalk. Requests for assistance were sent to nearby fire departments. Aid came from West Keansburg, Red Bank, Keyport, Atlantic Highlands, Middletown township, Port Monmouth and Belford. Seven pumpers using from two to three lines each, were in operation.

Smoke made it impossible to get to the end of the pier which consisted of concessions, commissary store rooms, waiting rooms and comfort stations, and a coal dock.

Two Coast Guard cutters responded from Sandy Hook and a steamboard pulled in to aid the firemen. With the assistance of gas masks furnished by the coast guards, the firemen were able to withstand the heavy smoke. American Red Cross and hospital nurses also helped.

The actual damage has been estimated at $40,000.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to latter investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending May 18

MUNCIE, IND.—Forging Co. plant damaged	40
BUFFALO, N. Y.—Lumber yard of L. N. Whissel Co.	275
INDIANAPOLIS, IND.—Indiana National Guard Armory	80
PEORIA, ILL.—McLaren Cone Corp. and adj. property	160
SHELBURNE FALLS, MASS.—Congregational Church destroyed	60
LOCUSTDALE, PA.—Packing plant of Kehler Bros.	80
O'FALLON, ILL.—Hardware store, W. W. Thomas	40
DUBOIS, IND.—Dubois-Robineau Furniture Co.	80
BLACKLEY, GA.—Stock of Chancey Supply Co.	25
KEANSBURG, N. J.—Pier of New Point Steamship Co.	60
HAZELTON, PA.—Store of J. Koplin and adj. estab.	40
WESTBROOK, ME.—Plant of Ames Shovel & Tool Co.	40
VERNON, MICH.—Elevator of Vernon Milling Co.	25
CONCORD, N. H.—Factory of Eastman Co.—R. Weir property	30
MOBILE, ALA.—Plant of Southern Pine & Hdw. L. Co.	80
MILFORD, MICH.—Factory of Auto Dash Co.	25
BELCHERTOWN, MASS.—Hotel and town hall damaged	80
ALBANY, N. Y.—Storehouse of Libby, McNeill & Libby Co.	80
GRAND RAPIDS, MICH.—Plant of Grand Rapids Sash & Door Co.	80
MILL VILLAGE, PA.—McMinn Mill and adj. property	25
LAREDO, TEX.—Property of M. Little damaged	160
WINFIELD, ALBERTA.—Saw mill of E. Drader	40
VANCOUVER, B. C.—A. P. Tynan & Co. property	40
STOCKTON, CAL.—U. S. barracks, 4 miles west	40
KENDALLVILLE, IND.—Odd Fellows' Bldg. damaged	25
HUNTINGDON, PA.—Bldgs. at A. J. Black Coal Mine	50
VIRGINIA, MINN.—Mill of Bailey Lumber Co. destroyed	65
FORT DODGE, IA.—Farmers Creamery, W. H. Daubendiek farm	25
WORCESTER, MASS.—Icehouse of Walker Ice Co., Coes Pond.	160
NICOLET, QUE.—Residence of J. H. Caron destroyed	25
ST. LOUIS, MO.—Property of Kissel-Skiles Car Co.	25
ROCHESTER, N. Y.—Warehouse of Carey Co.	25
CHICAGO, ILL.—North pier terminal damaged	120
BIRMINGHAM, ALA.—Hotel Bennett building damaged	85

Two Firemen Severely Burned in Chicago Apartment Blaze

Rescue work by Chicago firemen at a fire in a six-story brick apartment building, rivaled even the "movies" for thrilling scenes and incidents. Occupants fled down the fire escape, scantily clad—the lives of one hundred tenants were in danger. Two firemen were severely burned after venturing into the burning building to search for tenants missing in a hasty checkup.

TACOMA, WASH.—Business block, Kapowsin district..... 25
OCEAN CITY, N. J.—Berkley Hotel destroyed..... 60
PLATTSBURGH, N. Y.—Barnum Cole Grist mill destroyed.. 25
EASTPORT, ME.—Factory No. 3, Seacoast Canning Co..... 80
HOUSTON, TEX.—Warehouse of Bartell Moving Co..... 80
JACKSONVILLE, FLA.—Property of Gress Mfg. Co..... 35
JERSEY CITY, N. J.—Factory of J. H. Gautier Pottery Co.. 80
CHICAGO, ILL.—All Saints Episcopal Church..... 40
PLUNKETT, SASK.—Canadian Pacific R. R. station..... 30
SUPERIOR, WIS.—S. Y. Joseph's store..... 175
BIRMINGHAM, ALA.—J. A. Head establishment and adjoining property 25
WAUPUN, WISC.—H. H. Hoard building destroyed..... 100

Week Ending May 25

EMERADO, N. DAK.—Business district damaged..... 65
CLEARFIELD, PA.—Establishments in Nevlin Block..... 80
FRAMINGHAM, MASS.—Odd Fellows Bldg., Hollis St..... 25
CULLMAN, ALA.—Whse. of Farmers & Merchants Whse. Co.. 100
ATHENS, GA.—Property of High Shoals Mfg. Co..... 275
COLUMBUS, WIS.—Bldg. of Columbus Canning Co..... 40
CHENEQUA, WIS.—Dwelling of J. V. Quares destroyed.... 25
MUNISING, MICH.—Business district damaged..... 40
VERMILLION, ALTA.—Property of School of Agriculture.... 25
MERIDEN, CONN.—Store of Standard Auto Supply Co..... 25
HENDERSON, N C.—Whse. of Carolina Bagging Co..... 35
MARINETTE, WIS.—Warehouses of Peter Arnovitz..... 25
STEVENS POINT, WIS.—Property of Vetter Mfg. Co..... 65
GRAND DETOUR, ILL.—Hotel Sheffield owned by T. Campbell. 25
STERLING, ILL.—Plant of Northwestern Barb Wire Co.... 250
HOLLYWOOD, CAL.—Fox Studio damaged..... 165
CLEVELAND, OHIO.—Plant of Progressive Laundry Co..... 65
TUNKHANNOCK, PA.—American Feldspar Co. plant & adj. bldg. 65
ASHLAND, MO.—Business bldgs. damaged..... 80
BOGALUSA, LA.—Cohen Furniture and Marx Hdw. stores.... 165
O'FALLON, ILL.—W. O. Thomas store and adj. est..... 40
HARRODSBURG, KY.—Mercer County Court House..... 80
PIPE'S CREEK, OHIO.—Stockhouse, Powhatan Mining Co.... 65
CLEVELAND, OHIO—Plant of J. B. Pierce Co..... 40
LANGLEY PRAIRIE, B. C.—Business district damaged..... 40
HIGHLANDS, N. J.—Public school building destroyed..... 30
HAMMONTON, N. J.—The Roberts Mansion..... 80
BEATTYVILLE, KY.—Plant of Bellepoint Lumber Co..... 65
PEEBLES, OHIO—Plant of Basic Products Co., near here.... 80

INDUSTRIAL RESEARCH CHECKS LOSSES FROM DUST EXPLOSIONS

Practically All Combustible Dusts Can Be Ignited from an External Flame—Standards Prepared by Competent Engineers

TECHNICAL advances, concentration of manufacturing into larger units, and the more complete utilization of by-products and waste materials, desirable as they may be in industry, are nevertheless, the source of an increasing hazard to industry, through the increase in dust explosions which has followed the changes. At least 28,000 industrial plants, employing more than 1,324,000 persons and manufacturing products of an annual value in excess of $10,000,000,000 are subject to these hazards, David J. Price of the United States Department of Agriculture said in an address before the Insurance Department of the Wharton School of Finance and Commerce at the University of Pennsylvania. He also said:

"Many dust explosions are now occurring in industries in which dust explosions have not previously taken place. The introduction of new manufacturing process, as well as new types of mechanical equipment, have added to the importance of dust explosion prevention."

Mr. Price, who is the engineer in charge of chemical and technological research into dust explosions now in progress in the Bureau of Chemistry and Soils, spoke also as the chairman of the Committee on Dust Explosion Hazards of the National Fire Protection Association, and expressed particular satisfaction with the cooperation which he and his staff have enjoyed with the industries, state officials, the insurance agencies, and the underwriters.

Project is One of Great Interest

"The economic importance of dust explosion prevention," said Mr. Price, "is definitely indicated by the increased attention given to the subject in recent years. Originating as a problem very little understood, surrounded by apparent mystery, it has developed into a project not only of interest to our own country, but commanding considerable attention in foreign countries as well.

"The research work of the Bureau of Chemistry and Soils indicates that when mixed with air in proper proportions combustible dusts of practically all types can be readily ignited by external sources of heat or flame. The bureau has obtained records of more than 300 of these explosions. In seventy-eight dust explosions 498 persons were killed, in 106 explosions, 878 were injured. In 144 cases the property loss amounted to $39,706,108, an average of nearly $250,000 for each explosion. These facts, naturally explain the interest of insurance companies and the National Fire Protection Association, composed of 140 organization members and the 4,000 associate members."

This association operates through more than 30 technical committees of which the Dust Explosion Hazards committee is one, each committee having jurisdiction over one section of standard-making activities. This committee has already prepared measures for dust explosion control and prevention in flour and feed mills; in sugar and cocoa pulverizing systems; in terminal grain elevators; in pulverized fuel systems; and in starch factories.

Work in Starch Mills Cited

The control measures for mills and elevators were more directly the outcome of the original investigations into these subjects by the Department of Agriculture. The work in starch factories was used by the speaker as an example of the expansion of the work. The hazards of receiving and milling the corn were in large measure covered by the studies of elevator and milling hazards. The special standards for starch factories relate specifically to the handling of dried starch, which the engineers have found to be explosive whenever it is dry enough to float in the air, even though the department may be one in which the air is humid. "These standards," the speaker said, "were prepared by a competent sub-committee composed of engineers from the industry itself as well as fire insurance, State, and Federal agencies."

In its work which pulverized fuel systems, Mr. Price said, "the committee made a distinct departure in that preventive measures were prepared in anticipation of a possible dust explosion hazard rather than waiting for disastrous dust explosions before safety work was undertaken." Regulations for both the indirect and direct systems of utilizing pulverized fuel include standards for (1) location of pulverizing operations, (2) construction of puverizing building, (3) ventilation and dust collection, (4) operation of pulverizing equipment, (5) installation of magnetic separators, (6) electricity for light and power, (7) grounding of machinery, (8) dust collectors, (9) safety vents, (10) blower installations, (11) drier design, (12) construction of transport pipe lines, (13) location of storage and furnace bins, and (14) fire protection.

"Although the dust explosion hazard now exists in many new industries," Mr. Price said, "it is gratifying to observe the progress in control that has been made in certain of the grain handling industries, particularly in flour milling where the dust explosion loss has been reduced by efficient dust collection systems and other methods of prevention and control. This industry in its early days experienced great loss from dust explosions, but a serious dust explosion in modern flour mills is unusual. When dust explosions do occur in the flour milling industry their effect and extent are limited by efficient control measures."

In closing, Mr. Price expressed appreciation of the cooperation enjoyed in this conservation of resources, stressed the need for further research, and invited further cooperation.

Another N. Y. Organization Planned—A third firemen's organization is being planned for western New York. It will be known as the Livingston County Volunteer Firemen's Association. The other two volunteer firemen's group in that section are the Western New York Volunteer Firemen's Association and the Southeren Tier.

Fire Department Could Not Save High School

The local fire department augmented by fire companies from nearby towns, could not save the high school building in Monroe, N. Y. The loss has been estimated at $200,000.

GAS MASK TESTED IN NEW YORK SMOKE HOUSE FOR ACRID FUMES

Test Made in Presence of Asst. Chief Dougherty and Dr. Harry Archer—Men Not Affected by Sulphur or Other Type of Smoke

By WM. JEROME DALY

THE New York Fire Department recently conducted a test of the Burrell All-Service gas mask at the drill yard in the rear of the School of Instruction on East 68th street, where Assistant Chief of Department Thomas F. Dougherty represented Fire Chief John Kenlon.

The demonstration was held at the behest of former Captain Alfred Kinsella who retired from the New York Department a year ago and is now representing the Mine Safety Appliance

Watching the Gas Mask Test at the Drill Yard

Left to right—Dr. Archer holding lamp, Engineer Willner of School of Instruction; Assistant Chief Thomas F. Dougherty in rear and three wearers of Burrell all-service gas mask. On the right is former Capt. Alfred Kinsella of the Burrell Company, walking out of the smoke house.

Co. Many officers of the department were present, including Dr. Harry M. Archer, honorary medical officer and officers and members of Rescue Companies Nos. 1 and 2.

A fire was started in the smoke house to generate sulphur, rubber and other pungent smoke. Chief Dougherty had a few members of the Rescue Company in the test equipped with the American Atmos Company's mask now used by the New York Department and in order to create competitive testing. The Burrell masks were worn by Capt. Kinsella and firemen who volunteered for the test.

The test lasted a half hour. The Burrell equipped men remained in the smoke house as long as the Atmos wearers.

The Burrell mask is a filter type containing a canister which is provided with chemicals for absorbing or rendering harmless all poisons, gases, smoke and fumes and for converting carbon monoxide into harmless carbon dioxide. It is equipped with a tell-tail dial which shows the amount of service the canister has been subjected to and indicates when a new canister should replace the one in use.

Three times during the test the light in a regulation mine lamp went out, indicating the absence of air and oxygen in the smoke house. In the accompanying photograph Dr. Archer can be observed holding the lamp.

The test was also observed by Deputy Police Commissioner Joseph A. Boag in charge of police equipment and supplies. Commissioner Boag was specially interested in the test from the standpoint of the new Police Emergency Service of which there are now six squads in service in New York City. Commissioner Boag said that the officials of the Police Department are endeavoring to find the right type of mask to carry on the police wagons for ammonia work, sewer gas fumes and kindred situations. He seemed impressed by the test.

No official comment on the outcome of the test was forthcoming from the fire officials present. Chief Dougherty said he could not express his opinion of the mask for the reason that he was obliged to first make a written report to Chief Kenlon.

Capt. Kinsella expressed himself as satisfied with the manner in which the gas mask performed.

N. F. P. A. Amends Charges on Shure-Stop

A few weeks ago, the National Fire Protection Association sent out information to its members on the operation of a breakable bottle filled with carbon tetrochloride which was installed as an automatic fire extinguisher. The device is being marketed by the International Fire Equipment Corporation under the name of "Shure-Stop." At that time the association labeled the device as unsatisfactory. Since that time they have investigated the sources of information upon which the statements were founded and have issued the following letter to their members:

"The International Fire Equipment Corporation, manufacturers of the "Shur Stop" extinguisher, have circulated a letter and pamphlet to our members, dated May 1st, 1928, referring to statements made by this Association in its News Letters of October, 1927 and April, 1928.

"These have been carefully reviewed by the Executive Committee with the result that it is considered that in justice alike to the manufacturer and the Association the following statement should be issued:

"It is proper for the Association to advise its members regarding its standards. This does not necessarily involve an obligation to pass judgment upon the merits of any particular proprietary device. The value of any such device in the field of fire protection must ultimately be determined by experience.

"The item in the News Letter of October, 1927, was based on information drawn from advertising and not from direct or first hand knowledge, and in so far as it implied that "SHUR STOP" is without merit, this statement was unjustified.

"The International Fire Equipment Corporation has submitted a field record of its device covering a period of a year and a half, during which reports of the use of "SHUR STOP" on approximately 500 consecutive fires were received, 96 per cent of which were successfully extinquished.

"The Association has not checked this field record and has no reason to question the correctness of the record.

"The tests reported in the News Letters are not sufficiently comprehensive to constitute an adequate basis for judgment on the merits of the device.

"The Association withdraws the statements regarding this extinguisher made in the News Letters of October, 1927 and April, 1928."

First Plan of Detroit Headquarters Ready

Hans Gehrke, Detroit architect has submitted to the Board of Fire Commissioners of Detroit, for approval, a sketch of the proposed new headquarters building to be located on the present site of the old headquarters building at Wayne and Larned streets.

Mr. Gehrke and Chief William Burgess in charge of Department Buildings recently went to New York to observe the layout of the New York Fire Department's medical office at

Architect's Sketch ,of the Proposed New Fire Headquarters for Detroit

headquarters. It is proposed to have a rather elaborate medical bureau at the new Detroit Fire Headquarters Building. Fire Commissioners Murphy and Clippert, accompanied them.

Fire Department, Columbia, S. C.—Annual report of the fire department, Columbia, S. C.; ninety-five pages and cover.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

THEATRES SHOULD BE PROTECTED AGAINST POSSIBLE FIRE PANIC

Puff of Smoke or Shout Is All That Is Needed to Start a Stampede—Ushers and Theatre Employees Should Be Drilled in What to Do

By C. L. BARGREN,
Engine Company No. 1, Rockford, Ill.*

BECAUSE of the almost certain panic which follows, the theatre fire has the greatest loss of life and is the most disastrous financially to the owner. It has been proven time and again, that theatre crowds move and act on impulse, and "the survival of the fittest" seems to rule rather than intelligent reasoning. Theatre crowds resent and ignore spoken orders.

When the realization comes to the theatre manager that he is powerless in stopping a stampede, and that he is responsible for the safety of every man, woman and child in this theatre, he becomes the best fire and life hazard eliminator in the city. It should be remembered that a real fire need not occur to cause a catastrophe. A puff of smoke, or a hysterical person, and the panic has started. A theatre has been wrecked, a business ruined, and a major disaster has been perpetrated all in a few seconds.

Short-circuited electric motors, wiring, scenery and props, projection room supplies or smoking back stage or an adjoining building fire are common causes for theatre fires and stampedes. The question of drafts therefore is of utmost importance. The stage and orchestra pit doors open into the backstage for this reason. They should be fireproof and kept closed. The fire curtain should be dropped whenever fire starts. A simple signal should be devised between the operator's booth, backstage, orchestra pit, and manager's office, to be used in case of fire only. Fire alarm boxes and telephones should be located in different parts of the theatre. Fire extinguishers should be placed in open and numerous places.

Aisles, foyer, halls and stairways should always be free from waiting crowds. Exit doors should be oiled to work with ease at all times. Women and children attend matinees. Extra precautions should be taken during these times. Cripples and old folks must be recognized as a panic problem. Should they become caught in a crowd stream, they would be trampled on and form a jam. If they could be placed in good seats on the main floor directly next an exit away from the main aisle, it probably would solve this problem.

Ushers and all employees must be drilled to take proper positions in all emergencies. They must see that exit doors are kept open and free from jams, drop the fire curtain, shut off the ventilating system, turn in the alarm, light all lights, throw the notice on the screen or if the fire is in the projection room, announcement should be made by the orchestra leader or organist. Two men should be stationed at the bottom of each inside exit stairway.

Remember—there is no such thing as a fire or panic proof theatre. It can only be built of fire resisting material. The contents and fittings will burn, and jamming of exits will always occur, regardless of what is said to the contrary.

If ever once a theatre has a disastrous fire that memory will always live in the minds of people, and that scare will manifest itself in loss of patronage. If remodeled, the smoke smell will be obnoxious for a considerable length of time so that occupancy will be further delayed.

The screen notice should read something like this:

Ladies and gentlemen, you are requested to leave the theatre quietly, because of a small fire in this same block.

By order of Fire Marshall .....

* One of series of articles prepared for dissemination to owners of special establishments, and to schools and civic organizations.

Matoon, Ill., to Have New Station—Plans are being drawn for a new station to be erected in Mattoon, Ill.

Kenakee, Ill., Erecting Fire Station—A combined fire station and city hall is being erected in Kenakee, Ill. The city will purchase two pumpers and an aerial ladder truck soon.

Useful Data on Starting Volunteer School

The Rockland County Volunteer Firemen's Association, comprising a group of towns near the west bank of the Hudson river in New York, has gained a great deal of information on firemen's school since they organized a course of instruction for their members.

Capt. Wm. Paul Babcock, Chairman, Training Committee

The selection of an officer has been found to be important. At first the association wanted to employ two men, one to teach evolutions and one for the lectures. Luckily, a man was found who could care for both fields. He had to be sympathetic with volunteer problems and one who could adjust himself to local conditions.

The original school organization plan was to have the same work given on the same day in three of four large villages. This was found to be impracticable owing to the time required for evolutions and to the fact that drills did not start early enough to make use of the extra daylight saving hours. The drill sessions were therefore planned for a whole day, and each time in a different village. Each community had a chance to see the work gone over completely about four times. Lectures were held in the various village public schools in the evenings.

The average attendance was not large—the minimum was fifteen and the maximum was thirty-five. The school did not have the support that it warranted. The younger element found other diversions in the evening more to their liking.

There have been many direct results from the school. Members of one engine company have abandoned their old methods of selecting officers by ballot and now pick them according to the men's ability. Officers of other companies are passing on the information that they received to members of their units.

Where companies in one county have some agreement whereby they will cooperate in "covering in," it is necessary that one instructor will be employed in giving technical information to all units. Then when one company is protecting property temporarily in another section, the men will be trained to work in harmony.

The Rockland County school has not been a financial success. To others who may contemplate such an undertaking, the suggestion is made that tuition fees be fixed to cover all incidental expenses, or if based on the instructor's expenses only, then no part should be spent for incidentals. An association should be willing to make a generous contribution to such an enterprise and to charge it to advertising.

WM. PAUL BABCOCK

New Pumper Delivered to Jamestown, N. Y.—A 1,000-gallon Ahrens-Fox pumper has been placed in service at No. 2 station, Jamestown, N. Y.

John G. Gamber to Give Siren as Prize—John G. Gamber, former fire marshal of Illinois, has offered a siren for a prize to the chief having the most men attending the fourth annual short fire-fighters course at the University of Illinois.

Drill Tower Erected for School Course—Contracts have been let for the construction of a drill tower to be used in training students at the short course for firemen to be held at the University of Illinois, June 19-22.

Pearl Smith Still in Hospital—Pearl Smith, active worker in the Illinois Firemen's Association, is still in the Barnes Hospital, St. Louis, where he has been confined for the past several months. He is getting along as well as can be expected.

N. Y. Patrol Spreads 42,000 Covers

The annual report for 1927 of the New York Fire Patrol, the Salvage Corps of the New York Board of Fire Underwriters, has been issued and shows the following results of the combined operations of the New York and Brooklyn branches. The reports were issued separately, but are here reported jointly.

The total fires at which the Patrol service was represented was 33,428 as compared with 37,383 for the year 1926; the actual responses by the patrol apparatus was 21,697 as compared with 23,905 for 1926; the verbal alarms (fires investigated but not responded to by apparatus) amounted to 11,731 as compared with 13,478 for the year previous.

Members of the Patrol spent 112,190 hours on watch duty at premises afire; the ten units of the service traveled a total of 82,593 miles during the year; the duration of actual service of the several companies amounted to 11,657 hours; the patrol force spread a total of 41,054 stock covers and 1,160 roof covers; various companies of the service responded to 81 fires on still alarms which originated on notice from citizens running to company quarters.

Among 186 different causes listed, careless smokers lead all others and of the 295 different characters of occupancy listed flats and apartments were the more numerous.

In the report of the New York branch of the Salvage Corps a record for the past fifty-nine years is given, in which it is disclosed that the New York branch responded in that time to 308,851 fires or an annual average of 5,235; its companies spent a total of 212,072 hours on duty; spread a total of 954,560 stock covers and 60,966 roof covers.

In the Brooklyn branch of the service the report shows a record for the past thirty-two years. That branch responded to a total of 98,884 fires or an annual average of 3,090; duration of service 68,015 hours or an annual average of 2,125; spread a total of 202,450 stock covers or an annual average of 6,327 and 11,390 roof covers or an annual average of 356.

Both reports contain the customary testimonials sent gratuitously to James O. Schwank, superintendent of the Patrol, commending the members and the service generally for exceptional efforts during the year in protecting property. The following, while unusual, is typical of the tone of the average run of such testimonials:

New York Board of Fire Underwriters,
85 John Street, New York City.

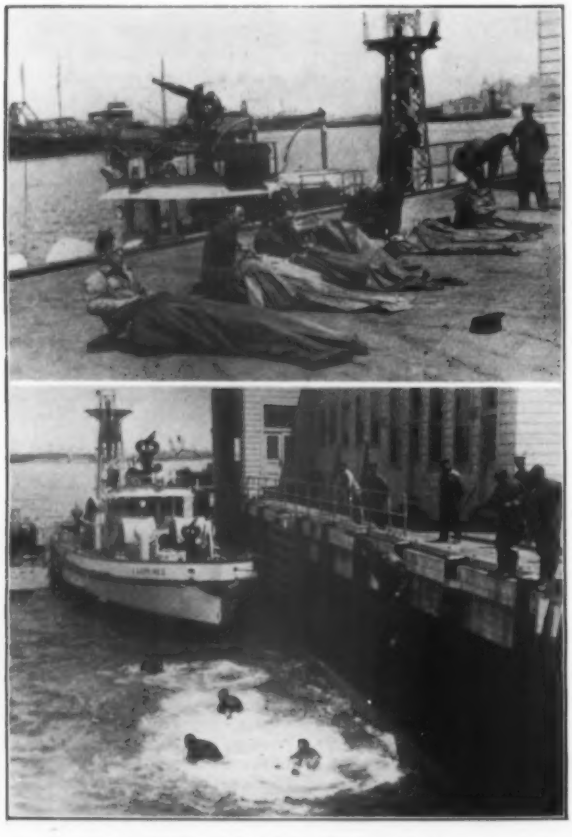
Gentlemen:

This is to state that the William Herman Hat Box Co., Inc., will not file any claim against any insurance company for damages from fire that occurred in this building on February 17th. There were some losses from water damages, but not enough to warrant the trouble that the companies would incur in settling the matter.

With a word of praise for the work done by the men of the Fire Patrol,

Very truly yours,

WILLIAM HERMAN, President.



Firemen Test New Waterproof Suits

Suits designed for use in fighting boat fires were tested out by firemen of Long Beach, Cal. The suits keep the men dry and prevent them from sinking. The upper photographs shows the men putting on the suits, and the lower photographs shows the firemen in the water. The fireboat L. A. City No. 2 is shown in both illustrations.

Arson Squads Started in Illinois Cities

Organization of arson squads in the principal cities of Illinois was undertaken this week by State Fire Marshal S. L. Legreid to combat incendiary fires. Work was started Monday in Waukegan and Galesburg, where representatives of the fire marshal met with city officials and civic leaders to outline the plan. The plan will be extended to other cities as rapidly as practical, and later to smaller communities.

An arson squad consists of one member each from the police and fire departments and one representative chosen by the chamber of commerce or other civic group. Whenever the fire department suspects anything wrong with a fire, it is the duty of the arson squad to get on the job at once. Its purpose is to launch an immediate and searching inquiry, preserving all tangible evidence and taking possession of the premises if necessary. If evidence warrants, the state fire marshal will join in pushing the investigation.

The state will be divided into districts for organizing arson squads. Two districts have been laid out for the present. One district embraces all of the northern portion of the state lying north of a rough line from Rock Island to Chicago Heights. This line follows state highway No. 7 from Rock Island to Joliet and No. 22 from Joliet to Chicago Heights. Waukegan is in this district. The second district takes in territory between the Illinois and Mississippi rivers, immediately south of the first district. Galesburg is in this district.

Counties in the first district are: Jo Daviess, Stephenson, Winnebago, Boone, McHenry, Lake, Carroll, Ogle, Kane, DuPage, Whiteside, Lee, DeKalb, Kendall and the northern portions of Rock Island, Henry, Bureau, La Salle, Grundy and Will.

Counties in the second district are: Mercer, Henderson, Hancock, Adams, Pike, Brown, Schuyler, McDonough, Warren, Knox, Fulton, Peoria, Stark, the western portions of Marshall and Putnam and the southern portion of Bureau, Henry and Rock Island.

"Local arson squads means swift and sure investigations of all questionable fires," said State Fire Marshal Legreid. "They will enhance the chance of securing convictions and will deter firebugs. The state fire marshal will function as hitherto with this difference—the case will be hot when our investigators arrive because a local investigation has gathered and preserved the first hand evidence, which is essential to a successful investigation."

Mr. Legreid stated that the increase in fire losses despite all the fire prevention efforts which have been exerted, makes it necessary to adopt energetic efforts to curb incendiary losses.

N. Y. Cycle Club Elects Honorary Members

The Firemen's Cycle Club of New York, a rendevous for those who love the Fire Department and its best traditions, has elected to honorary membership Fire Commissioner C. Hayward Murphy of Detroit and Paxton Mendelssohn, chairman of the Fire Prevention Committee of the Detroit Board of Commerce and "Chief" of the Box 12 Associates of Detroit.

The proposals were made by Dr. Harry M. Archer "Janitor" of the club. The election took place at the organization's recent bowling tournament in which Chief Mendelssohn won a prize. Commissioner Murphy was unable to be present. In a short speech of appreciation "Chief" Mendelssohn spoke of the entente cordiale between the New York and Detroit fire departments.

WM. JEROME DALY.

INDUSTRIAL PLANT PROTECTION

GOOD HOUSEKEEPING NECESSARY WHERE SPRAY LACQUER IS USED

Use of Quick-Drying Paints for Spraying Has Caused Added Fire Hazard in Industrial Plants—Only Tiny Spark Required for Blaze*

GOOD housekeeping goes a long way toward reducing the explosion and fire hazard in spray lacquering. This calls for good ventilation, proper storage of main and local supplies, carefully checked operating methods and precautions against such factors as smoking, static electricity, sparking electrical apparatus and other sources of ignition. The solvents generally used in lacquer work are of the low flash-point type while the solids, consisting of pyroxylin, flexible oils and resins, are highly inflammable when dry. A lacquer fire spreads quickly and is a hard type to check.

The goal of the user of these new finishes should be to store the lacquers in separate fire-resistive structures and the thinners underground with a proper pump arrangement in the mixing room. Inside storage room for any large quantities should always be avoided and local supplies for immediate use should be stored in cabinets built of fire-resistive materials. These storage quarters should be adequately ventilated and safely lighted. It is generally conceded that the ordinary vapor-proof globe is safer than the mercury vapor lamp, but the safest lighting equipment may be useless as a safeguard unless switches, plugs and other electrical connections are wisely located.

When Housekeeping Fails

It required nothing more than a stray spark from the auxiliary equipment of a mercury vapor lamp, combined with bad housekeeping, to start a recent disastrous fire. In spraying lacquer a certain amount that does not evaporate or adhere to the article is either drawn off through the ventilating system or is caught on the ceiling, walls, floor or projections of the spraying booth itself. In the case mentioned this was sufficient to provide material for a mild explosion and before workers could pull the switch a second explosion of greater violence had blown out the windows, wrecked the equipment, including the sprinkler system, and paved the way for a disaster.

First explosions in such cases shake the building and stir up pyroxylin dust which is always on the ceilings and the various pieces of equipment in the plant. It so happened in the case of this disaster, and in many others that followed its general lines. Workmen were killed by these blasts. Terror reigned. And then fire!

Another lacquer fire occurred in an automobile refinishing plant. It was the typical scene of the less modern spraying concern—several half-finished cars, stray cans of varnish remover and pyroxylin lacquer, a small partitioned-off storeroom with 100 gallons of lacquer, smoking permitted in the small office beside the storeroom, sparking DC motors in a room where volatiles were used and sprayed, ordinary incandescent lights and snap switches, no exhaust ventilation, batteries left in cars being sprayed, gasoline left in car tanks with caps removed and filler pipes plugged with cotton waste.

An ideal condition for a combination fire and explosion that destroyed the entire contents of the building and damaged the structure to the point of warping and twisting the steel roof girders!

The cause of another fire appears to have been the result of bad housekeeping. The janitor had just swept up a pile of pyroxylin scrap and shoveled it into an open box. A spark, struck by the shovel, ignited some of the scrap which smouldered in the box for a few minutes before bursting into flame—and doing $450,000 worth of property damage alone.

Recommended Cleaning Methods

The extensive damage of this fire that started because the operators of the plant did not know that only non-sparking metal should be used for cleaning purposes was largely due to a secondary fire in the unclean ducts. This was fanned by the blowers which were going at the time and the fire spread so quickly that 378 sprinkler heads were opened simultaneously, resulting in too great a spread of the water pressure.

Scrap on the flooring should be thoroughly wet down before any attempt is made to sweep or shovel it up. In one plant visited in this investigation a water spray arrangement was operated in each duct after each day's work and just prior to the daily cleaning.

By applying a coating of plaster of Paris or whiting, which can very easily be scraped off when cleaning, the business of keeping the interior of the spray booths clean is greatly simplified. Another method is to apply a thick coating of vaseline or grease over which may be applied heavy Manila paper. Cleaning is then merely a matter of removing the paper. A method which removes loose particles and which may be used where a complete cleaning is not necessary is to blow down the walls of the booths with compressed air while the ventilating system is operating.

Last But Not Least

Although many plants are changing over to lacquering, they are still doing a considerable amount of painting and varnishing. If these processes are performed in the same booths, fires may start from spontaneous combustion. Paints and varnishes dry by oxidation and the heat generated by this process may cause the ignition of the highly inflammable pyroxylin deposit.

Ducts should be as short as possible, round rather than square and, preferably, without bends. There is less friction generated in the round type, while simplicity of design naturally makes cleaning an easier, more complete process. Many duct fires have been attributed to the proximity of the ducts to heating pipes or chimneys.

Every known precaution should be taken to guard against the hazard of static electricity. Fires from this cause can best be guarded against by using thinner containers or safety cans bearing the label of Underwriters' Laboratories, Inc. Large thinner containers of the drum type should be placed on grounded metal supports. If such containers are left on an ordinary insulating support they act as condensers and collect charges of static electricity which is generated by the flow of liquid through the spigot.

If belts are in rooms subject to inflammable vapors, static collectors should be used even if it is necessary to employ more than one of these or to resort to the use

* From booklet on Spray Coating issued by the Hartford Accident and Indemnity Company, Hartford, Conn.

of copper strips touching the belt instead of the ordinary combs. In transferring inflammable liquid from one container to another it is well to form the habit of making contact between the containers.

Water is the most effective extinguisher of fires from dry pyroxylin finish deposits as in spray booths and ducts, due to its quenching and cooling effect. Foam, sawdust, and soda are very effective in extinguishing fires in lacquers, thinners and the finishes themselves.

Know the hazards of spray lacquering and a very large percentage of the safeguards will suggest themselves.

CONVENTION DATES

May 30-31—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 23rd Annual Convention, Rock Hill, S. C. President, Chief Louis Behrens, Charleston, S. C.; Secretary, R. S. Hood, Sumter, S. C.

May 31—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Next meeting, Irvington, N. J. Secretary, William Exall, Chamber of Commerce Building, Newark, N. J.

June—NORTHWESTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. 56th Annual Convention, Ashland, Ohio.

June 5-6—SOUTH DAKOTA FIRE CHIEFS' ASSOCIATION. Annual Convention, Vermillion, S. Dak. Secretary, Chief C. M. Johnson, Rapid City, S. Dak.

June 5-7—KENTUCKY STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATION. 10th Annual Convention, Middlesboro, Ky. Secretary, Captain S. G. Render, Fire Department Instructor, 303 Speed Building, Louisville, Ky.

June 5-7—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. 22nd Annual Convention, Troy, N. Y. (meeting in conjunction with Mayor's Conference). Secretary, Chief John H. Golden, Cohoes, N. Y.

June 5-7—OHIO FIRE CHIEFS' ASSOCIATION. 11th Annual Convention, Marion, Ohio. Secretary, Chief Philip J. Harty, Fire Department, Youngstown, Ohio, Sheet and Tube Company.

June 7-9—WASHINGTON STATE FIREMEN'S ASSOCIATION. Sixth Annual Convention, Wenatchee, Wash. Secretary, Harry S. Jenkins, City Electrician, Fire Headquarters, Bellinham, Wash.

June 8-9—DELAWARE COUNTY FIREMEN'S ASSOCIATION. 22nd Annual Convention and Parade, Chester, Pa. Recording Secretary, Timothy McCary, Chester, Pa.

June 8-10—DAUPHIN COUNTY FIREMEN'S ASSOCIATION. 10th Annual Convention, Williamstown, Pa.

June 16—LEBANON COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Palmyra, Pa. Secretary, William I. Kutz, Box 233, Myerstown, Pa.

June 19-21—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 39th Annual Convention, Kingston, N. Y. Secretary, Chief Chris W. Noll, Poughkeepsie, N. Y., Fire Department

June 19-22—ANNUAL SHORT COURSE OF FIRE PREVENTION, CONTROL AND EXTINGUISHMENT. 4th Course, University of Illinois, Champaign-Urbana, Ill. Secretary, Ill. Firemen's Association, Asst. Chief Roy W. Alsip, Champaign, Ill.

June 20—NASSAU COUNTY FIREMEN'S ASSOCIATION. Annual Tournament, Port Washington, N. Y.

June 20-22—WISCONSIN STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and Tournament, Kiel, Wis. Secretary, E. Philip Mueller, Jefferson, Wis.

June 20-23—PROVINCIAL FEDERATION OF ONTARIO FIRE FIGHTERS. Annual Convention, King Edward Hotel, Toronto, Ont., Can. Secretary-Treasurer, David H. Lamb, 132 Bellevue Avenue (2) Toronto.

June 25—NORTHWEST FIREMEN'S ASSOCIATION. Semi-Annual Convention. Centerton, Ark. Secretary-Treasurer, F. M. Brock, Bentonville, Ark.

June 25-28—OKLAHOMA STATE FIREMEN'S ASSOCIATION. 34th Annual Convention and State Firemen's Training School, Blackwell, Okla. Secretary, Charles Slemp, 820 East 19th St., Oklahoma City.

June 26-29—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Burlington, Vt. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass. Chairman, Exhibit Committee, Frank M. Tiffany, Gamewell Company, 1022 Commonwealth Avenue, Boston.

June 28-30—ALLEGHANY COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Tarentum, Pa.

July 3—MAPLE VALLEY FIREMEN'S ASSOCIATION. Tournament, Battle Creek, Ia.

July 4-6—DOMINION ASSOCIATION OF FIRE CHIEFS. 20th Annual Convention, Kingston, Ont. Secretary, Chief James Armstrong, Kingston.

July 5-7—SOUTHEASTERN FIRE CHIEFS' ASSOCIATION. Annual Convention, Atlanta, Ga. Secretary, Chief H. E. Whitener, Hickory, N. C.

July 10-12—MICHIGAN STATE FIREMEN'S ASSOCIATION. 54th Annual Convention, Port Huron, Mich. Secretary, H. L. Williams, Ludington, Mich.

July 11—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 8th Annual Convention, Hall of Carlisle Fire Company, Milford, Del. Secretary, Sam H. Carson, Dover, Del.

July 17-19—INDIANA FIREMEN'S ASSOCIATION and NO. IND. INDUST. & VOL. FIREMEN'S ASSO. Annual Convention, Terre Haute, Ind. Secretary Ind. F. Asso., Frank H. Miller, Fire Headquarters, Terre Haute.

July 18-21—SOMERSET COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Boswell, Pa. Secretary, J. R. Shanks, Rockwood, Pa.

July 27-28—NEW MEXICO STATE FIRE CHIEFS' ASSOCIATION. Annual Convention, Socorro, N. M. Secretary, Theodore A. Rosenwald, East Las Vegas, N. M.

Aug. 1-2—CENTRAL DISTRICT VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, Clearfield, Pa. Secretary, John E. Johnson, DuBois, Pa.

Aug. 6-8—UTAH STATE FIREMEN'S ASSOCIATION. 21st Annual Convention, Bingham Canyon, Utah. (Date to be set at April meeting.) Secretary, Harris E. Anderson, Fire Headquarters, Salt Lake City, Utah.

Aug. 14-16—WISCONSIN PAID FIREMEN'S ASSOCIATION. 21st Annual Convention, Racine, Wis. Secretary, Hugh Corcoran, Superior, Wis.

Aug. 22-24—VIRGINIA STATE FIREMEN'S ASSOCIATION. 42nd Annual Convention, Ocean View, Va. Secretary, Chief J. B. Gordon, Newport News, Va.

Aug. 28—MICHIGAN STATE FIRE CHIEFS' ASSOCIATION. Annual Convention, Fordson, Mich. Secretary, George F. Dansbury, Grosse Pointe Farms, Mich.

Aug. 29-30—INDIANA FIRE CHIEFS' ASSOCIATION. Annual Convention, Fort Wayne, Ind.

Aug. 29-31—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 6th Annual Convention, Reading, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Street, San Diego, Cal.

Aug. 29-31—INDIANA FIRE CHIEFS' ASSOCIATION. Annual Convention, Fort Wayne, Ind. Secretary, Chief Ezra D. Owens, Fire Department, Bedford, Ind.

Sept. 5-6—COLORADO STATE FIREMEN'S ASSOCIATION. 12th Annual Convention and Tournament, Rocky Ford, Col. Secretary, Clinton Turnbull, 303 Jacobson Bldg., Denver, Col.

Sept. 11-13—ILLINOIS FIREMEN'S ASSOCIATION. 41st Annual Convention, LaSalle, Ill. Secretary, Roy W. Alsip, Asst. Chief, Fire Department, Champaign, Ill.

Sept. 18-19—IOWA FIREMEN'S ASSOCIATION. 51st Annual Convention, Independence, Ia. Secretary, E. E. Parsons, Marion, Ia.

Oct. 1-5—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. 49th Annual Convention, Uniontown, Pa. Secretary, Charles F. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 1-6—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 35th Annual Convention and School of Instruction for Firemen, Sacramento, Cal. Secretary, State Fire Marshal Jay C. Stevens, Merchants' Exchange Bldg., San Francisco, Cal.

Oct. 9-10—MISSOURI VALLEY ASSOCIATION OF FIRE CHIEFS. Annual Convention (tentative date). Secretary, Chief Ray Tiller, Waterloo, Ia.

Oct. 9-11—RAILWAY FIRE PROTECTION ASSOCIATION. Annual meeting, place to be selected later by Executive Committee. Secretary-Treasurer, R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

Oct. 11-12—GREAT LAKES ASSOCIATION OF FIRE CHIEFS. Annual Convention (tentative date). Secretary, Chief Frank C. McAuliffe, Chief of Patrols, 100 S. Desplaines St., Chicago, Ill.

Oct. 15-17—EASTERN ASSOCIATION OF FIRE CHIEFS (Eastern Division, I. A. F. C.) First Annual Convention, Bellevue-Stratford Hotel, Philadelphia, Pa. (Just preceding I. A. F. C. Convention.) Secretary, T. Howell Johnson, Newark, N. J.

Oct. 17-20—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 55th Annual Convention, Bellevue-Stratford Hotel, Philadelphia, Pa. Exhibits at Second Regiment Armory. Secretary, Chief James J. Mulcahey, Yonkers, N. Y.; Executive Secretary, Jay W. Stevens, Merchants' Exchange Bldg., San Francisco, Cal.; Chairman, Exhibits, Chief August Gerstung, Elizabeth, N. J.

Oct. 22-24—KANSAS STATE FIRE CHIEFS and FIREMEN'S ASSOCIATIONS and WOMEN'S AUXILIARY. 13th and 42nd Annual Conventions and 3d Meeting, respectively, Liberal, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Who Wants a 1796 Fire Engine?

Lack of housing conditions makes it necessary for the Friendship Fire Company No. 1 of Danville, Pa., to sell a hand-operated pumper that dates back to August 18, 1796.

The pumper was originally purchased by Philadelphia on that date. In 1841, the pumper was supplanted by a steamer, at that time the last word in fire apparatus design. The Danville department purchased the machine for nine hundred dollars through

Old Hand Operated Apparatus That Dates Back to 1796

popular subscriptions. It was able to throw a stream for 273 feet. When bought it was in use for a century and was still in good condition. The Friendship Company used it until 1900.

At the present time, the old apparatus is practically useless except as a relic of former fire department days. Those interested are asked to write to William F. Rantz, secretary of the fire company.

Many Apply for Rockford, Ill., Firemen—There are ten vacancies in the Rockford, Ill., fire department, and eighty applications were received for the positions.

SALVAGE UNIT FAVORED FOR DETROIT FIRE DEPARTMENT

Study Made of Operation of Salvage Corps in Other Cities—Paxton Mendelssohn Answers Chicago Alarms With Chief McAuliffe of Patrol

By WILLIAM JEROME DALY

WHILE passing through New York on his way from Chicago to Atlantic City to attend the thirty-second annual meeting of the National Fire Protection Association, Paxton Mendelssohn, chairman of the Fire Prevention Committee of the Detroit Board of Commerce, and a member of the Board of Directors, said, "I am absolutely sold on the idea of salvage companies for Detroit."

Mr. Mendelssohn's opinions on this subject have been known to Detroit residents for some time. Since he recently spent a full twenty-four hours in the quarters of Fire Patrol No. 1 of Chicago as the guest of Chief Frank McAuliffe, prior to his trip to Atlantic City, he said he is more determined than ever to establish salvage companies for Detroit. He believed the patrol would benefit Detroit industry and commerce.

The Detroit Fire Commission has never publicly expressed itself on the question of salvage companies. Mr. Mendelssohn said, that at least two of the four commission members entertain some affirmative ideas on the subject. They stipulate, however, that the insurance companies and not the fire department should establish the patrol.

"To the fire insurance companies, it is a mutual proposition" Mr. Mendelssohn declared, as he pointed out with some emphasis that—"salvage companies are simply the finese of the service rendered by the insurance policy, and at the same time a saving to the insurance companies.

"To be satisfactorily operated, "there must be a spirit of co-operation between the city fire department and the salvage patrol service, such as I have often observed in New York and in Chicago."

The speaker declared that he had witnessed the operations of the salvage service in Omaha, Cincinnati, Baltimore and San Francisco, as well as New York and Chicago, and that he is throughly convinced that salvage companies more than pay for themselves out of the small or inconsequential exactions from the policies for the maintenance of the service.

In Chicago, Mr. Mendelssohn "bunked" with Chief McAuliffe and had twenty runs from 9.33 a. m. to 1.56 a. m. that night. In a log which he kept he recorded the total mileage covered and made numerous notations on the character of the work he observed carried out by members of the salvage corps. One thing which impressed him and which he noted was the affection and esteen between officers of the regular fire department and officers of the Fire Patrol. One could easily notice the high regard in which Chief McAuliffe is held by the regulars, and the reciprocal feeling. McAuliffe is still on an indefinite furlough from the Chicago Fire Department. He was relieved several years ago to reorganize the salvage service in that city.

Another observation recorded in the log accentuates Chicago's system of verbal alarms, about which so much was published recently in the fire alarm telegraph survey of that city by N. Banks Cregier, electrical engineer of Chicago. The record shows.

For the benefit of the visitor, Chief McAuliffe staged at Patrol No. 5 an evolution which was executed in four minutes and nine seconds by five members of the salvage corps. The evolution took up the following:

Up winding stairs (with two turns) to second floor carrying door opener, axe, carbide light, sprinkler tongs, and two 14 x 18 foot covers per man. Broke open locked door, shut off sprinkler system. One man assigned to alarm box and called special duty for another patrol by code tapper. One man returned for extra covers, making twenty covers in all. One man prepared a canvas water chute with four hooks to be used if too much water accumulated.

Full bedroom set of carpet, dresser, two pictures, and bed were stacked and covered completely. Two twenty foot tables such as counters in stores were completely covered, and ten loose chairs representing store furniture were placed on top before covers were spread. A pyramided stack of twelve packing cases each 4 x 4 x 4 were completely covered flush to the floor.

A twelve foot wall rack of shelves was covered, and a five foot dress rack was covered. Twenty loose chairs were stacked, and covered, and one large directors' table was covered. All covers were made into catch-alls on the floor and all cover edges were furled to divert water away from laps between covers.

Ohio Chiefs to Meet in June—John Shilling of Wooster, chairman of the exhibit committee, has announced that there will be many exhibits at the coming convention of the Ohio Fire Chiefs' Association at Marion on June 5-7.

N. Y. F. D. Valor Awards

(*Continued from page* 458)

by before the train was brought to an emergency stop. Flynn then lifted the man up between the bumpers of the 3rd and 4th cars. This case is the first of its kind in many years where recognition has been given for heroism performed outside the strict line of fire duty. Commissioner Dorman is known to hold the view that a fireman is always on duty and always in the service of the public.

Capt. Davis M. Lynch (deceased) receives the Department medal for rescuing a seventy-two year old woman from the fifth floor at a third alarm fire in an old-law tenement house. A posthumous award will be made to his widow, Mrs. Agnes K. Lynch. This is the second posthumous award in the entire history of the New York Fire Dept., both of them at the insistence of Commissioner Dorman. Capt. Lynch subsequently died from injuries sustained in the line of duty at another fire.

Lieut. Edward J. Walsh of H. & L. Co. 10 (detailed to H. & L. Co. 6), receives the Department medal for rescuing a woman from her fifth floor bedroom at a tenement house fire.

Fireman Walter J. H. Hillis of H. & L. Co. 1, receives the Department medal for rescuing a woman from the fifth floor of an old-law tenement.

Capt. Walter L. Lamb of Rescue Co. No. 1, receives the Stephenson medal for general discipline and exemplary command of his company during the year 1927.

The officers and members of Engine Co. 251 at Wallabout Market, Brooklyn, receive the Fire College Efficiency medals for having executed the 22 evolutions in the best time of the year—16 minutes and one second.

Assistant Chief of Department Patrick Walsh receives the Administration medal for improving the business methods, standardizing and co-ordinating the work of the Bureau of Fire Prevention to which he was assigned two years ago.

What Are Benefits of Inspections?

(*Continued from page* 452)

the fire limits, and report in detail the results of their inspections to the insurance commissioner upon blanks furnished by him."

The Wisconsin Laws says—

"Such Chief of the fire department is required, by himself or by officers or members of his department designated by him for that purpose, to inspect all buildings, premises, and public thoroughfares, except interiors of dwellings, for the purpose of ascertaining and causing to be corrected any conditions liable to cause fire, or any violations of any law or ordinance relating to the fire hazards or to the prevention of fires." This is to be done not less than once in three months within the fire limits, and at least once in 6 months in all territory served by such fire department. Written reports must be kept on file "in the manner and form required by the Wisconsin Industrial Commission. Such inspection shall be subject to the supervision and direction of the Industrial Commission * * * ."

In most of the other states the law is not so specific. In some the local chiefs "may inspect" (Illinois, Iowa, Vermont), or "shall inspect upon complaint" (Alabama). In Maine the municipal officers shall annually elect an "inspector of buildings," who at least once in three years shall "inspect chimneys, flues, funnels, stoves, furnaces, boilers and boiler connections and heating apparatus in all buildings within his jurisdiction." The Oklahoma law requires the fire chiefs to inspect certain buildings "which have and maintain fire escapes, at least every three months." Other states make local fire chiefs deputy state fire marshals with power to inspect. Thus it is seen that some state legislatures have appreciated the value of inspections by firemen.

Erie County Firemen to Meet August 4—The Erie County Volunteer Firemen's Association will meet in Corry, Pa., on August 4. Many firemen from the northwest section of the state are expected to attend.

Asbury Park, N. J., Has Paid Fire Department—A paid fire departmenthas been established in Asbury Park, N. J. There are three companies and twenty-six call men. William Taggaret in chief. First alarms will only be received at the respective fire stations, but second alarms will summon all firemen in the city.

PROPER TYPE OF NOZZLE IS IMPORTANT AT LARGE FIRES

Definition of Fire Stream — Many Departments Confuse Nozzle Pressure With Quantity of Water Discharged — Example at a Store Fire

By GEORGE D. SUTER,
Engineer, Arkansas Fire Prevention Bureau, Little Rock, Ark.*

ONE of the fundamentals of good fire fighting is the proper use of nozzles and hose streams. Every trained fireman should know the effectiveness of the many sizes of nozzles under different fire conditions and it is the purpose of the tests we are about to make to show how effective different types of nozzles are under conditions met in actual practice.

Choice of Proper Size Nozzle Important

A standard fire stream is one that will deliver 250 gallons per minute, or gives a nozzle pressure of 45 pounds on a 1⅛ inch nozzle. With one hundred pounds pressure at the hydrant the maximum length of hose that could deliver a standard stream would be 350 feet. From this we get our standard hydrant spacing of a hydrant every block. If you have to lay out one thousand feet of hose it would be foolish to use a 1⅛ inch nozzle, as you would have only twenty-one pound nozzle pressure and 170 gallons of water. By changing to a 1-inch nozzle, the nozzle pressure would be thirty pounds and your discharge 162 gallons. The ideal condition if you have two leads of hose would be to siamese the two 1000 foot lines and then you would get the same results as if you were 300 feet from the hydrant.

Every department should have two or three tips for each nozzle, ranging in size from 1- to 1¼-inches. In using shutoff nozzles it is a simple matter to carry extra tips which can be changed very quickly.

Too Small Nozzles Being Used

In my inspections over the state I generally find too small nozzles being used. For fires in mercantile districts nozzles less than 1⅛-inches should not be employed unless the water supply is very weak and at low pressure. In towns where the water works can deliver as much as one thousand gallons per minute and buildings are over 2-stories in height, a deluge set should be provided with nozzle tips from 1¼ to 1¾ inches. These large nozzles are essential when fires get beyond their incipiency stage and are to be held to the building of origin. Water thrown on an intense fire vaporizes.

I was in a town of about five thousand population some time ago where two stores with a fire wall between had burned. The fire had a good start when the department arrived. They fought it with one ⅝- and one ¾-inch nozzles. Later a third line with a ⅝-inch nozzle was laid. I was in the town to try to get them to increase their water supply and when I mentioned this fire they all said they had plenty of water the night of the fire. They meant they had plenty of pressure, which I estimated to be forty-five to fifty pounds at the nozzles but the ⅝-inch nozzles were discharging only eighty-five gallons per minute and the ¾-inch only 110 gallons. The sum shows that the small quantity of 280 gallons per minute was being thrown on the fire. This small quantity of water going on the fire at three different places had no cooling effect and probably aided the fire more than it retarded it. Had two or three standard fire streams been played on this fire, I believe it would have been held to the building of origin.

These small nozzles have a place in your department and can be used effectively on residential fires. Many departments today are using nozzles as small as ½-inch on 1½-inch hose for dwelling fires. The only criticism against the use of 1½-inch hose and small nozzles is that unless their limitations are understood it will be used on fires that have assumed large proportions, on which must be thrown plenty of water. The advantages of its use are less water damage and greater flexibility. It is easily handled by one man in places that would be inaccessible with a large line.

Determining Effective Height of Stream

The effective height of a stream is determined by its angularity where the stream is being directed into a burning building. An angle of forty-five degrees is considered the maximum for effective operation of a stream being thrown through a window. At this rate, the height an effective stream would reach would be approximately equal to the distance of the nozzle from the building. For example, if the sidewalk is 10 feet wide and the roadway is 30 feet, then a stream could reach a height of 40 feet when entering a window. The definition of an effective fire stream given by fire protection engineers reads as follows:

"A good hose stream is one which, at limit named, would enter through a window and barely strike the ceiling with force to spatter well, and which, at limit named, has not lost continuity of stream by dividing into a shower of spray, and which at this limit appears to shoot 9/10 of the whole body of water inside a 15-inch circle and ¾ of it within a 10-inch circle."

One very effective means of producing effective streams where the pressure is low and no pumper is available or where a pumper is available and the fire is a long distance from a hydrant is by siamesing two lines together. The friction loss in 2½-inch hose with 200 gallons flowing through a 1-inch nozzle is about 10 pounds per 100 feet, with 250 gallons flowing through a 1⅛-inch nozzle it is 15 pounds per 100 feet. If lines are siamesed this loss is cut in two.

A thorough knowledge of friction losses is essential in the intelligent operation of a pumper and if you will memorize the two figures for friction losses I have just mentioned, they will be of material assistance to you in determining the correct pressure to carry at the pump.

* Abstract of paper presented at convention of Arkansas State Firemen's Association.

New Castle, Pa., to Open New House—Elaborate plans have been made for the opening of the new fire station on June 28.

Crude Oil Fire at Sinclair Oil Company Refinery

Fire destroyed 35,000 gallons of crude oil at the Sinclair Oil Company Refinery at New Orleans, La. In addition to this, it damaged the pump house, still, and hundreds of feet of pipe lines. The large amount of pipe at such a refinery can best be estimated from the photograph.

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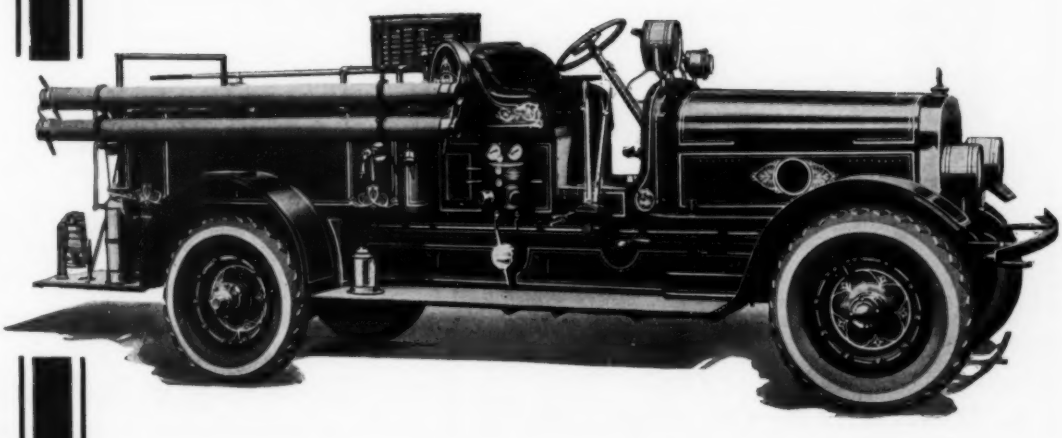

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FIRE DEPARTMENT ACTIVITIES

Granville, N. Y., Raising Funds—Granville, N. Y., is trying to raise $5,000 for the purchase of a pumper.

Rhinebeck, N. Y., to Buy Pumper—The village of Rhinebeck, N. Y., has voted to purchase a pumper.

Seven New Captains in E. Orange, N. J.—Seven lieutenants of East Orange, N. J., have been promoted to captains.

Jermyn, Pa., to Buy Apparatus—Following serveral bad fires, the town will purchase new fire apparatus immediately.

Jefferson, Ia., Buys Apparatus—Jefferson, Ia., has purchased fire apparatus mounted on a Studebaker chassis for $6,850.

Danville, Pa., Firemen Want Apparatus—A drive has been started in Danville, Pa., to raise $6,000 for the purchase of a ladder truck.

Another Company for Waynesburg, Pa.—Application has been made for a charter for a new fire company organized in Waynesburg, Pa.

Another Company Wanted in Sioux City—Residents of the northern section of Sioux City, Ia., are campaigning for another fire station for that section.

Lynchburg, Va., to Merge Fire Stations—The National Board of Fire Underwriters has given approval to the plan of merging Stations No. 1 and 3 in Lynchburg, Va.

Bristol, R. I., to Have New Fire Station—A site has been selected in Bristol, R. I., on which will be erected a new fire station. The city appropriated $20,000 for the land.

Investigation of Insurance Practice Urged—The Boston Central Labor Union and the United Improvement Association urges an investigation of the fire insurance rates and practice as affecting Boston, Mass., and vicinity.

Valley Stream, N. Y., Has New Station—The new house in Valley Stream, L. I., N. Y., for Hose Co. No. 1 is almost complete. It will hold two companies. The village board appropriated $27,000 for this fire station.

Badger State Firemen to Have Tournament in June—The Badger state firemen's tournament will be held in Menominee, Wis., on June 23 and 24. This will be the thirty-fifth annual gathering.

La Jolla, Cal., Wants Better Protection—The Civic League of La Jolla, Cal., are urging additional fire protection for the city. It may be impossible to consider this project until the 1929 budget is drafted.

Gym Installed at Aurora, Ill., Station—A gymnasium has been installed on the second floor of the central station in Aurora, Ill. Members of the five companies meet there each Monday afternoon for instruction.

Improvements Planned for Rome, N. Y.—Rome, N. Y., is considering the erection of two new fire stations, a fireproof fire alarm headquarters and a new fire alarm system. All of these improvements are estimated to cost $87,420.

Conshohocken, Pa., Lets Fire Alarm Contract—The Gamewell Co., has been awarded a contract for the installation of the first unit of a fire alarm system for Conshohocken, Pa. The system will cover the industrial and business sections.

New Hampshire Firemen to Meet in June—The executive committee of the New Hampshire Firemen's Association met in Manchester to consider the date of the annual convention. The gathering may be held in Manchester some time in June.

Ex-Chief of Revere, Mass., Dead—Frank H. Hussey, former chief of Revere, Mass., died at the age of seventy-five years following a four months' illness. Flags at all stations were at half mast. He was born in Salem and came to Revere fifty-three years ago.

Plans Made for Pennsylvania Convention—Committees are planning for the annual convention of the Allegheny County Firemen's Association to be held in Tarentum, Pa., June 18–23. Three new buildings of the department will be dedicated convention week.

Four Corners, S. I., May Get New House—The community of Four Corners' Staten Island, N. Y., may get a new fire house. The erection of the station was recommended by Deputy Chief Beggin to Fire Commissioner John J. Dorman. The proposed station will cost $80,000.

Grand Rapids Firemen Ask for Vacation—Firemen of Grand Rapids, Mich., are campaigning for a weekly vacation each year as is granted to members of other city departments. The three new city commissioners are in favor of granting vacations to the firemen.

Daily Dozen for Asbury Park Firemen—According to a new ruling, all firemen of Asbury Park, N. J., must arise at 6:15 a. m. each morning for setting up exercises. In fine weather, the calisthenics will be held outdoors. Any fireman who is not down by 6:30 is assigned to station cleaning for the day.

Firemen Resign Over Apparatus Dispute—The volunteer firemen of North Wales, Pa., have threatened to resign because apparatus other than the make desired was purchased. The town ordered one pumper and the firemen wanted another which cost $1,300 additional. The firemen offered to pay the difference.

Sea Cliff, N. Y., Limits Apparatus Speed—The Council Board of Sea Cliff, L. I., N. Y., has limited the speed of apparatus going to a fire to thirty miles an hour, and apparatus returning from a fire must not travel faster than twenty miles an hour.

May Organize Valley Firemen—Eight companies met in Verona, Pa., to discuss the formation of a firemen's association to be known as the Allegheny Valley Volunteer Firemen's Association. The object of the organization would be to better the fire protection facilities of the valley.

Changes in Rockford, Ill., Rules—According to the new uniform regulations of Rockford, Ill., firemen must wear helmets on all fire calls and a scooped instead of a straight visor on dress uniform caps. Heretofore, firemen were permitted to wear all kinds of headwear while answering calls.

Firemen Hurt at Fire Station Fire—Two firemen were injured while fighting a fire in their own station in Indianapolis. Sparks from a flue started a fire on the roof of Engine House No. 28. Battalion Chief Murphy was injured by a tile falling on his head, and another officer was slightly burned.

Pageant Planned for Firemen's Convention—A pageant presenting the history of Uniontown and Fayette counties, in which seven hundred persons will take part, is planned as part of the entertainment for the State Firemen's Convention to be held in Uniontown, Pa., on October 1–5.

Douglaston, N. Y., to Get New Station—Increased fire protection will be given the Douglaston-Little Neck section of Long Island. New York City has appropriated $20,000 for the purchase of land on which will be erected a $70,000 station. It is believed that work on the new building will start some time in June.

Apparatus Delivered to Chelsea, Mich.—The village of Chelsea, Mich., and farmers about that section will now enjoy fire protection. All farmers who contributed to the purchase of the apparatus will be entitled to fire protection for the entire life period of the machine. The pumper has a capacity of 400 g.p.m.

Southeastern Chiefs to Meet in July

Various committees are working to make the coming convention of the Southeastern Fire Chiefs Association in Atlanta, Ga., July 5–7, an outstanding success. Chief D. W. Brosnan of Albany, Ga., is chairman of the exhibit committee. There are forty-eight booths available for manufacturers. No charge will be made for such floor space, but those intending to have exhibits at the convention should communicate with Chief Brosnan.

This organization is a section of the International Association of Fire Chiefs.

Chief Chris Noll Stunned by Tank Blast

Chief Chris W. Noll, head of the fire department in Poughkeepsie, N. Y., was hurled about thirty feet when some acetylene tanks exploded during a fire in two abandoned passenger coaches of the New York, New Haven and Hartford Co. Although he was not seriously hurt by the flying metal, he was stunned by the explosion. None of the firemen were injured although many complained of ringing in the ears.

It is believed that the fire was started by boys playing in the storage shed. The shed was wrecked by the blast.

PROPOSED IMPROVEMENTS

Plympton, Plymouth Co., Mass.—Reports state that a committee was appointed at a recent town meeting for the purchase of fire apparatus. Charles Curtis is mentioned as a member of this committee.

Philadelphia, Pa.—Plans completed for erection of station at 83rd St. and Tinicum Ave., as per reports. Estimated cost $100,000. Councilman Connell interested.

Ferndale, Whatcom Co., Wash.—Better equipment program being discussed as a means of solving the problem of fighting fires on farms. Present plans considered include small pump unit such as employed by U. S. Forestry Dept., also a second truck consisting of chemical and ladder equipment. Sufficient hose for such equipment also considered.

Claymont, New Castle Co., Del.—Claymont Fire Company planning to purchase chemical-pumping equipment according to reports.

Somerset, Pulaski Co., Ky.—Somerset's volunteer department reported as possible prospects for new uniforms for their membership.

Mountain Home, Elmore Co., Idaho—Fire department requested Village Board to purchase new fire engine.

Wanted

Captain or Assistant Chief in Texas City, must be disciplinarian and drill tower master, use no intoxicants, salary $175 per month, promotion to Chief if qualified. State age, experience. Communications confidential. Address: Frank Baylis, % FIRE ENGINEERING, 225 W. 34th Street, New York City.
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5-2-16

Have Smoky Time Fighting Dump Fire

Fire that started in a dump of the Hood Rubber Company at Watertown, Mass., generated immense volumes of heavy, black and pungent smoke that was visible twenty miles distant. The fire extended for a depth of thirty feet in the accumulated pile of refuse. Firemen found it very difficult to get at the seat of the trouble and continued to pour large volumes of water from four hose lines. Three thousand feet of hose lines were laid. The Watertown fire department went back to their respective stations and left the industrial department to continue the fight.

Heat from the fire melted the rubber which penetrated deeper into the pile. Firemen were forced to fight the flames from the windward side to avoid the dense smoke clouds.

The wind carried the flames across the Charles River toward Cambridge, Brighton, Aliston, Brookline and other places.

Fire of a similar nature that broke out in the dump one year ago lasted for ten days. It was finally placed under control by dynamiting a ditch all around the dump while the fire burned itself out.

Training the Plant Firemen in Summer

With the coming of warmer weather, fire brigades in many Factory Mutual mills will show increasing activity in holding drills, to make the men thoroughly familiar with hose streams and other fire-protective equipment.

Other factors equal, the plant best prepared in this respect is least likely to suffer a serious fire. The Sayles Finishing Plants at Saylesville, R. I., believe in preparedness. They maintain a private fire department of thirty-seven men to guard their plant and the mill village.

The accompanying views are taken at one of their regular drills, held once every two weeks. Above, the men are handling four hose streams in the mill yard. Below, a chemical line is being carried to the roof from their combination hose and chemical wagon. This apparatus contains 1000 feet of large

Fire Department Drills at the Sayles, R. I., Finishing Plants
Upper, men handling four hose streams in mill yard. Lower, a chemical line being carried by the department to the roof of the plant from the combination chemical and hose car.

hose and 200 feet of chemical hose, two 35-gallon chemical tanks, ladders, wrenches, and auxiliary equipment.

Actual handling of equipment in drills held frequently during the summer and occasionally during the winter means that there will be no fumbling delays when a fire breaks out.—*Factory Mutual Record.*

Ouachita Parish to Purchase Apparatus—Ouachita Parish, La., has appropriated $12,500 for the purchase of fire apparatus for the protection of rural districts. In the past, calls from rural sections were answered by the Monroe Fire Department.

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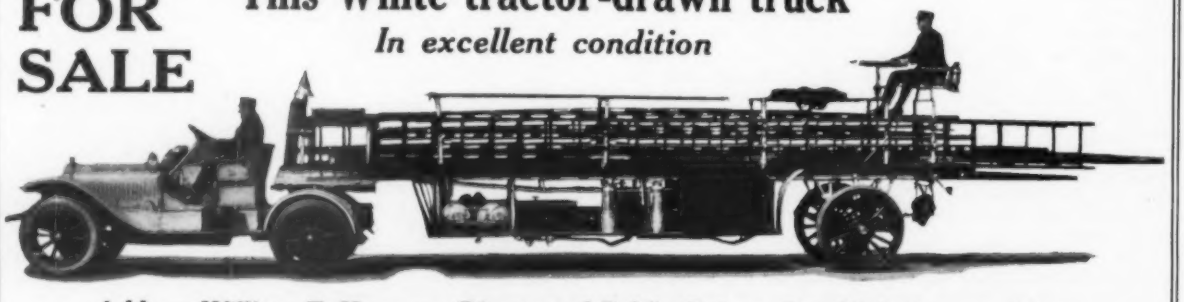
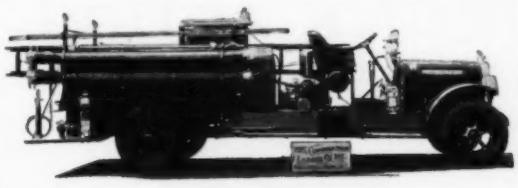


Address William F. Kearney, Director of Public Safety, City Hall, Orange, N. J.



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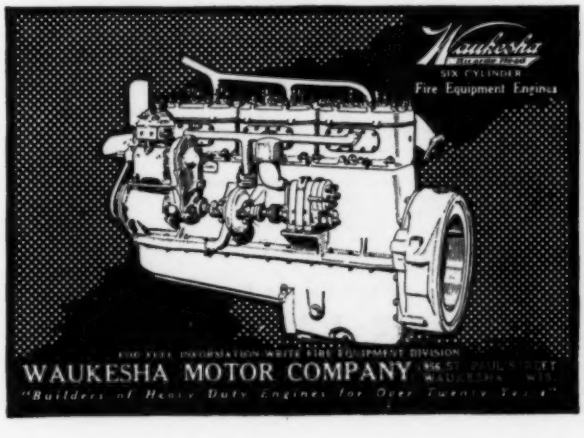

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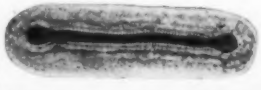

If a hose salesman can convince you by any argument that his three-year guarantee will result in just as good an adjustment, should one be necessary, as a guarantee for six years, from a reliable company, certainly if you have a goat, he's got it.

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Scraper Makes Fire Lanes

The United States Forest Service uses the illustrated device as standard equipment in constructing fire lines and maintaining them in the Forest Reservations.

The tool consists of a scraper attachment that is readily attached to a plow. The tool comes in very handy in making a path from eighteen to thirty inches in width. The mould board and share is first removed from the plow and then the scraper is attached. This change can be made in about a minute. The scraper is the invention of P. B. Hackley of San Francisco.

C. W. GEIGER.

Scraper in Operation

Seattle Firemen Injured

Several firemen of Seattle, Wash., were injured when two companies speeding to a fire crashed together. The injured were rushed to the City Hospital for emergency treatment and the more serious cases were taken to the Providence Hospital. Dr. F. T. Maxon, fire department surgeon, reached the scene shortly after the crash.

The front end of one truck was caved in and firemen were hurled to the street. The collision was almost head-on. The engine company truck was catapulted almost entirely across the broad street by the impact and then caromed against a parked car.

The crash occurred shortly before midnight.

Here's the Last Word in Examinations

(*Continued from page* 450)

a tabulation of the results actually to be somewhat more difficult than the material commonly used in the free answer forms. The statements in the completion, the multiple choice, and the true-false form varied somewhat as to the relative degree of difficulty but no trouble was encountered in finding material in any of the three forms so easy as to be handled by the least competent of those who took the tests, so difficult as to prove beyond any except a very few of the most able, or of any intermediate degree of difficulty so as to prove beyond the capacity of any desired percentage.

2. As to appeal, the examiners are well enough satisfied that they desire to use material of the same kind in the next tests. Those taking the tests were somewhat discomfited by the apparent difficulty of parts of the material but felt that they had an opportunity to show their knowledge of fire fighting organization, equipment, materials, and methods. As far as can be told, the practical elimination of difficulties of expression encountered with the free answer material more than offset, in the minds of competitors, the apparently greater difficulty of the short answer material.

3. As to the discriminating value of the short answer material, there is little evidence available in statistical form, but observation and such non-statistical evidence as could be gathered indicate a high degree of validity.

4. For some reason not fully apparent, the pitfalls always encountered in putting test material in the short answer forms seemed to be more numerous than with test material for other classes of positions. It is believed that as a result of the experimental work the faulty material has been almost or completely eliminated.

On the whole, it can be said in this case as in practically all others, that the short answer material is more difficult to work out in reasonably satisfactory form than the free answer material, but after it is developed it appears to be more satisfactory in every respect, including not only ease of administration and quickness and ease of scoring but also appeal to examiners and competitors and apparent predictive value. Enough material was included in the experimental work to make it possible to develop three sets of tests of approximately the same degree of difficulty but constituting different material so that the principal objection—the time and thought required for working out the short answer material—need not concern other personnel administrators who wish to cast their promotion tests for Fire Lieutenant in this form.

Outline of the Suggested Tests for Fire Lieutenant

The following is an outline of the tests suggested for Fire Lieutenant:

Test number	Test name	Relative weight	Time (minutes)
1	Fire fighting equipment, materials and methods ..... (Section A consists of 30 statements in the completion form, each of which requires the competitor to write in a word or a phrase to supply missing information. Section B consists of 20 statements in the multiple choice form, each with four answers from which the competitor chooses the best one. Section C consists of 100 statements in the true-false form; the competitor is to read each statement and indicate whether it is true or false.)	7	120
2	Understanding of literature relating to fire fighting..... (The competitor is required to answer with a word or a short phrase 10 questions as to the content and meaning of a printed selection placed in his hands and to indicate whether 20 statements relating to the content and meaning of a second selection are true or false.)		
3	Length of fire-fighting service.....	½	....
4	Service (efficiency) rating.....	1½	....
5	Physical condition	1	....

The written tests require two hours of the time of competitors. After a correct set of answers has been decided upon and stencils have been prepared, the papers of one competitor for tests 1 and 2 can be scored by an intelligent clerk or a low grade examiner in ten minutes or less.

In the following sections the various tests are discussed briefly and suggested methods of scoring are explained.

Fire Fighting Equipment, Materials, and Methods (Test 1)

As is explained above, Test 1 consists of three sections in the completion, the multiple choice, and the true-false forms; the experimental work has shown that each of these forms is most suitable for some group of items which it was desired to include. The scoring of Sections B and C, which are in the multiple choice and true-false form, is entirely a mechanical process which can be quickly and accurately done through the use of stencils. The 30 completion items of Section A require the exericse of judgment on the part of the scorer; for some of the statements there is more than one correct answer and for others the answer may be worded in more than one way.

A few examples of the completion, the multiple choice, and the true-false statements of test 1 are given in appendix 1 in order to illustrate the kind of material used and the degree of difficulty.

Understanding of Literature Relating to Fire Fighting (Test 2)

In a position of leadership, such as Fire Lieutenant, it is obviously important that those having high abstract intelligence be discovered and given appropriate credit in promotion tests. There would be some advantage in using one of the standardized tests of abstract intelligence but it has seemed wise on the whole to include only a reading test, which at one and the same time measures abstract intelligence roughly and also ability to understand and interpret literature relating to fire fighting work.

The reading test includes two selections. Ten questions are asked as to the meaning and interpretation of the first. The method for the second is somewhat different, as twenty statements relating to the meaning of the selection are placed in the competitor's hands and he is asked to indicate whether each of the statements is true or false.

Length of Fire Fighting Service (Test 3)

The common practice of public personnel agencies in promotion tests for Fire Lieutenant is to make some allowance for length of fire fighting service as such. It is suggested that the usual method of arriving at a rating for length of service be used, but that the relative weight given to length of service be made very small. The reason for this must be obvious—the person who has served as a fire fighter and who has profited by his experience should be able to show the results in the written tests and therefore to secure in that manner most of the credit to which he is entitled.

Service (Efficiency) Rating (Test 4)

Civil Service examiners and administrative officers in fire departments are agreed that one of the indications of success as a Fire Lieutenant is success in the lower rank; it is for this reason that the custom is almost universal of securing service ratings and using them in promotion tests. There is no statistical evidence as to the degree to which success as a Hoseman, Pipeman, or Engineer indicate success as a Fire Lieutenant; it is true also that such service ratings as can be obtained are very unreliable. In view of the situation, the staff of the Bureau of Public Personnel Administration is of the opinion that service ratings should be obtained and used but, like the ratings for length of service, should be given a relatively low weight.

Physical Condition (Test 5)

A Fire Lieutenant to be effective must actually lead his men in fire fighting work which may be physically exacting for short periods and which is fatiguing in long fires that must be fought for several hours or even for days in all sorts of weather. It is highly important, therefore, both to secure effectiveness in fire fighting work and to prevent unnecessary hazard to the fire fighters, that the Fire Lieutenant be in good physical condition. It is consequently suggested that medical and physical tests be given; that those failing to measure up to relatively high standards, if any such are found, be eliminated from further consideration; that those measuring up to these standards be rated according to their physical condition; and that the rating on physical condition be given a relatively low weight in the tests as a whole. No attempt is made in this article to suggest the standards which ought to be required on the methods of rating those who meet the standards.

Illustrative Material from Test 1 of Suggested Tests for Fire Lieutenant

Section A—Completion Statements

When hose is hung in towers, it should be supported by ..... coupling.

The first act of a company commander on arriving at another fire house which he has been ordered to cover is to .....

The maximum length of time that a wet cotton hose should be left on a wagon after a fire is .....

A charged length of hose hanging vertically must be supported every ..... feet.

Before breaking locked doors, fire fighters should first try to ..... them.

Section B—Multiple Choice Statements

The company commander first to arrive at the box when a false alarm has been turned in should:

——Immediately try to determine the cause of the alarm.
——Return to quarters with his company and report to headquarters that the alarm was false.
——Return to quarters with his company and report the case to the police department.
——Return to quarters with the company and detail one of his men to try to find out the cause of the alarm.

If a situation arises in the line of duty of a Fire Lieutenant which is not covered by rule, he should:

——Use his own judgment in the matter.
——Always refer the matter to a superior officer.
——Do as the majority of his men think best.
——Confer with an officer in his command.

If a Fire Fighter were ordered by a police officer on duty at a fire to enter a burning building, the Fire Fighter should:

——Refuse.
——Obey.
——Say he will carry out the order when he is ready to do so.
——Refer the matter to a Fire Captain or other superior officer of the Fire Department.

Section C—True-False Statements

T F The officer who arrives first at a fire assumes command until the arrival of an officer superior to him.
T F In laying out hose, the hose wagon should keep to the hydrant side of the street.
T F Driving over charged hose does not injure it.
T F Snow must be removed from in front of the fire quarters to the center of the street.
T F Hose taken up after a fire should be uncoupled and placed on the wagon in short lengths.
T F A member of the Fire Department must wear his uniform at all times when he is on duty.
T F A company commander enters in his records all the fires in his district.
T F The adequacy of fire escapes on buildings is determined by the company commander.
T F After placing the engine at a fire, the commanding officer directs his men to report to the seat of the fire.
T F All fire engines must be given a special trial test at least once a month.

Firemen Rescue Men Overcome by Gas

Eight workmen were overcome by gas while excavating for a storm sewer in New York City, and three members of the New York Fire Department succumbed in an attempt to rescue the others.

One of the men was pinned between a huge concrete pipe and the side of the excavation. When he failed to appear at quitting time, seven laborers were sent down, one by one, to look for the missing man. They were felled by a combination of carbon monoxide and leaking illuminating gas. Ladder companies were called.

Two members of Hook and Ladder Co. No. 1 went down and were overcome. Other firemen went down with gas masks and removed those suffering from gas poisoning.

Milford, Ill., Firemen Guests at Dinner—The Chamber of Commerce of Milford, Ill., were hosts to seventy-five firemen at a banquet held in their rooms.

Sacramento Wants State to Protect Fair—California owns a large amount of fair grounds which Sacramento has been called upon to protect. The Mayor stated that the state should install some chemical engines on the grounds to protect its own property.

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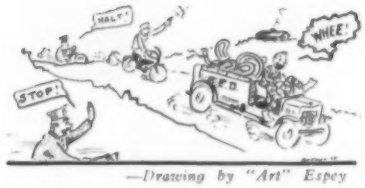

—Drawing by "Art" Espey

Anyway, It Was Kind of a Crazy Ride

Residents of Stonington, Conn., found out that they were not witnessing the filming of a movie comedy when a man clad in pajamas went racing through the town driving a fire truck, and chased by a half dozen uniformed men on motorcycles. They soon learned the cause. The driver of the apparatus was caught and brought back to the state insane asylum at Norwich from which he had escaped.

ONE WAY OUT

An eastern city started a new plan to train the firemen for possible officers. Several times each week, an officer of the department instructed the ambitious firemen in subjects that would be helpful at promotional examinations. As is to be expected in such cases, some instructors were very interesting and some very dull.

An instructor of the latter class finished his talk early. He said:

"Have you men any questions to ask? If not, I'll continue the lecture to the end of the hour."

A fireman stood up.

"I have a question: What time is it?"

In these days when a man is seen in bandages, it is hard to tell whether he was in a fire, or whether it was just a case of his wife or his still exploding.

THE SURE SIGN

Arthur was a fireman and a good one at that. He was ambitious, he was considerate, but he had an outstanding fault—he was bashful when in the presence of women. He tried to court the captain's pretty daughter.

One evening as Clara was upstairs manicuring her nails, the captain shouted up:

"I think that your bashful Arthur is out on the porch."

"Why pa, I didn't hear the front door bell ring," said Clara.

"Neither did I, but I heard his knees knocking together."

OUT IN TIME

The time had come for the monthly visit of the mother-in-law.

"Is your father home?" she asked five-year old Chester.

"Father has gone out."

"Out!" shouted the mother-in-law. "I saw him standing in the window as I looked up from the street."

"Yes, but father just went down the fire escape."

WELL OILED

Jenkins was an auto salesman. Jenkins was also a member of the Phoenix Hose Company, and an ardent worker at that. That explained why he was not home and where he was so long after midnight. If the truth must be known, he was attending the company smoker.

Some time near 2 A. M., there was a heavy pounding on the front porch. It awoke the household.

"What's that?" asked the maid in a frightened tone.

But the madam who had acquired some motor phraseology from the auto-fireman husband, merely replied, "It is just Mr. Jenkins coming up, out of control."

REVENGE

At last the fire company arrived. A line was brought up to the second floor to be directed onto the burning apartment.

The officer told some of the firemen what to do and then went inside to see how things were developing. There he found a hoseman with a nozzle under his arm—but shut off.

"You've been here five minutes now, and you haven't done a thing."

"To tell you the truth, officer, I don't like the people living next door."

A VALUABLE TOOL

The pumper heavily loaded with firemen went roaring down a deserted suburban street. And suddenly the motor went dead. The men fussed with the ignition, tinkered with the carburetor and with every "doodab" that the machine possessed, but still they could not get the apparatus to budge.

Then a rookie fireman got a brilliant idea.

"I'll run over to Mrs. MacGregor. I heard my wife say that she kept a budget."

NOT RESPONSIBLE

It was a great day for the chief. It was the twenty-fifth anniversary of the day that he joined the fire department and a similar anniversary of his nuptial day. When he went down to the fire station, he found his desk all decorated with flowers. Telegrams and letters wishing him the best of everything were heaped on his desk.

It was therefore with a "big-I-am" feeling that he opened the door of his cottage near the city line, early in the afternoon.

"Just think, Marie," he said to his wife, "Twenty-five years in the fire department and twenty-five years married. Shall we kill a chicken?"

"No, John. Can't see why we should punish the chicken for what happened twenty-five years ago."

FOOLED ONCE

After several weeks of campaigning, a fire company was organized in the progressive town of Hamel. For some reason, the treasurer of the company was bonded and he was given a large form to sign by the bonding company.

Proceedings were halted for some time, while the treasurer carefully read the various clauses in the form.

"Come on, don't delay things," shouted one member who was in a hurry. "I'll bet you didn't read your marriage license so carefully."

"Maybe not," was the reply, "but ever since I signed that I'm reading everything."

Drawing by "Art" Espey

The Aftermath of Reading "What the Well Dressed Man Will Wear"

Designers everywhere are shouting for color. And so today we have green refrigerators, red sauce pans and yellow coffee pots. But that is not all. The craze has even reached men's intimate apparel, and they have suffered accordingly. Some such garments look like made-over awnings or the last stage in sister's summer dress. The artist states that the scene is an intimate view of a fire department wash-room since the fancy "shorts" have met with universal favor in male undies. The natural thing to ask is, "What fire department has the artist been visiting?"

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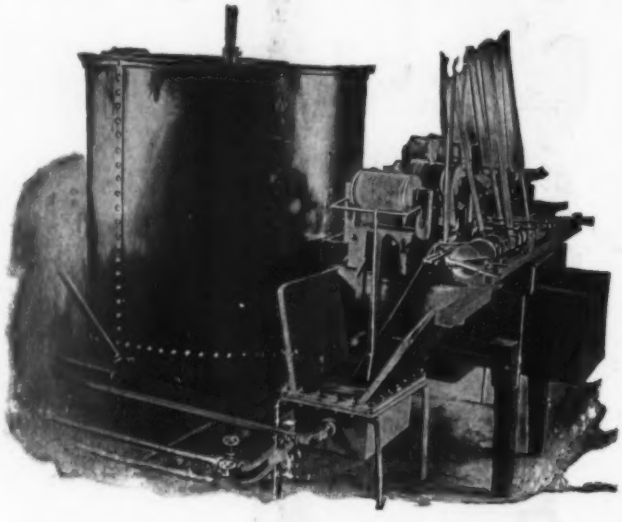
There are Signals with collars attached too; no matter what style or pattern is selected, we promise to improve the appearance of your department and give you the fullest measure of shirt satisfaction. Write for samples of the ten TubTest patterns.

To Fire Chiefs

A Signal has been selected as the regulation uniform shirt in Chicago, Cleveland, Minneapolis, St. Paul, Indianapolis, Columbus, Toledo, and in other large cities. Write us to submit our complete plan for dressy uniformity. No obligation.

SIGNAL SHIRT CO.
RACINE, WISCONSIN



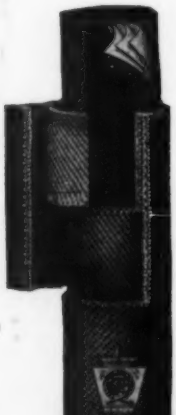
How is it Made?

FABRIC FIRE HOSE is so unusual in its construction that we have been asked again and again just how it is made. Those who have used it and have found its wonderful service qualities, far above the average hose, felt sure that we must have some special process of manufacture that makes Fabric Hose better.

And we have.

For instance, the machine illustrated above is for our patented process of treating the cotton strands with wax and Para gum, making Fabric Hose absolutely waterproof and impervious to mildew and rot.

Many other details of our process, besides this one, are illustrated and explained in a little booklet we shall be glad to mail you for the asking.—"Wax and Para Gum Treated Fire Hose.—How It Is Made." Address:



Fabric Fire Hose Co.

9-15 Park Place, New York, N. Y.

124-126 W. Lake Street, Chicago

Atlanta	Dallas	Minneapolis	Los Angeles
Boston	Binghamton	Portland	Newark
Columbus	Baltimore	San Francisco	Pittsburgh

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